

IBM'S SOFTWARE
PRODUCT SUPPORT POLICY

INPUT EUROPE

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POLICY

Prepared for:
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JUNE 1979

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TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| I INTRODUCTION | 1 |
| A. Objectives of the Study | 1 |
| B. Research and Methodology | 1 |
| II EXECUTIVE SUMMARY | 3 |
| A. IBM's Current Policy Status | 3 |
| B. Impact on Support Organisations | 6 |
| C. The Main Change - DP Division | 9 |
| D. System Software Implications | 10 |
| E. Application Software Implications | 11 |
| F. Impact on Revenues | 14 |
| G. Contract Differences in the Three Divisions | 16 |
| H. Recommendations | 17 |
| III SUPPORT IN DP DIVISION | 20 |
| A. 4300 as the Vehicle for a Policy Switch | 20 |
| B. Introduction of Software Maintenance | 23 |
| C. Complexity of the Software Tariff | 29 |
| D. Development of the System IPO/E | 31 |
| E. Contractual Changes | 33 |
| F. Summary | 33 |

| | <u>Page</u> |
|---|-------------|
| IV IMPACT ON SELECTED PRODUCTS OF DPD | 35 |
| A. On 4300 Processor Systems | 35 |
| A1. On 4331 Systems | 40 |
| A2. On 4341 Systems | 44 |
| B. On 8100 Information Systems | 46 |
| C. On 370 Model 158 | 58 |
| V SUPPORT IN GS DIVISION | 61 |
| A. Software Support Policy | 62 |
| B. Differences Across the Product Range | 64 |
| C. Software Tariffs | 67 |
| D. Contracts | 70 |
| VI IMPACT ON SELECTED PRODUCTS OF GSD | 71 |
| A. On System/34 Small Business Computer | 71 |
| B. On Series/1 Mini Computer | 74 |
| C. On the 5110 Desk-Top Computer | 78 |
| VII SUPPORT IN OP DIVISION | 80 |
| A. The Product Range | 80 |
| B. Office System 6 | 80 |
| C. Bundled Support | 82 |
| D. Contracts | 83 |

| | <u>Page</u> |
|--|-------------|
| VIII COMPARISONS BETWEEN DIVISIONS | 85 |
| A. Approach to Product Support | 85 |
| B. Tariffs | 86 |
| C. Contracts | 88 |
| D. Driving Forces | 88 |
| IX APPENDICES | 89 |
| A. User Questionnaire | 89 |
| B. List of Types of User Organisation | 93 |
| C. Price Lists | 94 |
| D. Contracts | 104 |
| E. Glossary | 163 |
| F. Summary of IBM Programming Services | 167 |
| G. Product Briefs | 170 |



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LIST OF EXHIBITS

IBM'S SOFTWARE PRODUCT SUPPORT POLICY

LIST OF EXHIBITS

| | | | <u>Page</u> | |
|-----|---|---|---|----|
| II | - | 1 | The IBM Product Continuum. | 5 |
| | - | 2 | Notional DP Division Organisation Chart. | 7 |
| | - | 3 | Licensed Programs for which the Revision for IBM Software Service will apply. | 12 |
| | - | 4 | Representative System Pricing in the USA of the 4300 Processors and their displaced Predecessors. | 15 |
| III | - | 1 | New Software Support Organisation due for Implementation by 1/1/80. | 26 |
| | - | 2 | Support Sources for the New Classifications of Products | 28 |
| | - | 3 | Charging Status of IBM Software Products under the Revised Support Scheme. | 30 |
| IV | - | 1 | Effective Unbundling of System Control Programming (SCP) | 39 |
| | - | 2 | 4300 System Dollar Prices | 41 |
| | - | 3 | 4331 Configuration Prices for a VM/370 Time-Sharing System | 43 |
| | - | 4 | Comparative System Dollar Pricing of 4331 Configurations | 45 |
| | - | 5 | Typical 4331 Configuration Costs - Hardware and Software as Percentages of Total Monthly Outgoings. | 47 |

| | | | <u>Page</u> |
|----|---|---|-------------|
| | - | 6 4341 Configuration Prices for a DOS/VSE Full-function System | 49 |
| | - | 7 Typical 4341 Configuration Costs - Hardware and Software as Percentages of Total Monthly Outgoings. | 51 |
| | - | 8 Typical 8100 Configuration Costs - Hardware and Software as Percentages of Total Monthly Outgoings. | 57 |
| | - | 9 Comparison of Pricing of 370/158 and 3031. | 59 |
| V | - | 1 GSD Structure. | 65 |
| | - | 2 GSD Contract Structure. | 69 |
| VI | - | 1 System/3X Configuration Price Range - Dollars. | 73 |
| | - | 2 Revenue Breakdown of "Typical" Series/1 Configurations. | 77 |

I. INTRODUCTION

I. INTRODUCTION

A. OBJECTIVES OF THE STUDY

- This study is the result of custom research for Philips Data Systems B.V. (Philips).
- The objectives of INPUT's research have been:-
 - to study recent changes to IBM software support policies and their impact on IBM organisation structures,
 - to examine the implications for the pricing of IBM software products,
 - to study IBM's standard contracts and analyse how they vary between divisions, in underpinning the different support policies,
 - to develop the likely upgrading possibilities for a number of IBM's key products and to price the revenue changes which upgrading would incur.
- Our report not only contains the details of this research and its findings, it also:
 - analyses the advantages and disadvantages of the various policies to IBM and to its customer base,
 - shortlists the options to Philips in proceeding to 'unbundle',
 - makes recommendations where possible on policies to be adopted.

B. RESEARCH AND METHODOLOGY

- The main method has been desk research; this has been used in analysing product pricing and contract differences.

- Auxiliary to this technique we have drawn on previous recent research:
 - into IBM products - 4300 Processors and Series/1 minicomputer,
 - into IBM organisation structures for sales, support and maintenance.
- To supplement both these methods, INPUT circulated fifteen current IBM users selected from all three of IBM's divisions. The questionnaire used is included in Appendix A., and the types of organisations are listed in Appendix B.
- Two of the user sample were interviewed in depth in the person of a Computer and Telecommunications Manager of a small airline and the System Software Manager for a well-known computer services company.
- Wherever possible, information was first sought from IBM (when in the public domain) and otherwise was crosschecked from another source.
- The IBM systems selected by Philips for detailed analysis during the study are underlined on Exhibit II-1. They are:
 - from DP Division
 - . S/370 Model 158
 - . 4300 processors
 - . 8100 information systems,
 - from GS Division
 - . S/34
 - . Series/1
 - . 5110,
 - from OP Division
 - . Office System 6.

II. EXECUTIVE SUMMARY

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A. IBM'S CURRENT POLICY STATUS

- IBM is pursuing a policy of overlap between the different ranges of its hardware products. This policy extends to the overlap between:
 - DP Division products,
 - Large mainframes
 - Mid-range mainframes
 - DDP processors, and
 - GS Division products,
 - Small mainframes
 - Small business systems
 - Desk-top computers
 - Minicomputers
 - Key entry devices.
- This policy is dictated by:
 - the need to encourage competition within "the giant",
 - the need to control the rate of introduction of new technology products,
 - the need to "back all the horses" in the technology race,
 - the need to appear to have a grand strategy for the information systems of the future.
- General Business Group (GBG) was formed in 1976 to bring together General System Division (GSD) and Office Products Division (OPD). The rationale behind this move was two-fold:

- Data Processing Division (DPD) as the largest revenue earner in the corporation required a counter-weight with a central interest in small systems; neither GSD nor OPD alone carried sufficient weight to provide the necessary balancing force,
- OPD, in spite of having the fastest growth rate and having a prime role to play in IBM's strategy for the 1990s, would remain the Cinderella of the divisions (because of the relative lack of glamour of its products) unless brought into the fold and integrated with GSD, a division with both aggressive selling techniques and a professional workforce.
- At present there is no discernible overlap between GSD and OPD products. The overlap between GSD and DPD is however considerable and is well illustrated in Exhibit II-1, which shows how the obsolete, current and still to be announced systems fit into the multi-layered product continuum.
- The policy of 'unbundling' software has continued progressively from its inception at the time of the release of the 370 range. The policy is not applied uniformly across the divisions for a mixture of commercial or "historical" reasons.
- The policy has reached its peak of sophistication with the present structure of DPD's software charging mechanisms. The structure comprises:
 - charging separately for software license and software support,
 - classifying products according to the type of support available,
 - grading products according to the type of maintenance programming services associated with them,
 - repackaging system software sets into preferred and chargeable operating system 'bundles', the System IPO/Es.

It is difficult to believe that the mechanism can usefully be made more complex without increasing the competitive opportunities of other vendors.

THE IBM PRODUCT CONTINUUM

• H SERIES (1981-3)

▣ 303X SERIES (77-78)
3031 3032 3033

▣ 4300 (E) SERIES (1979-80)
4331 Inca 3 4341 Maya 2
▣ 8100
8130 8140

* 370 SERIES
370/115 /125 /138 /148 /158 /168

3X SERIES
32 34 (36) 38
▣

S/3 *

COMMERCIAL POSTURE

- * Obsolete
- ▣ Current
- New Announcements

EXHIBIT II - 1

- By contrast GSD's policy is a straightforward one of:
 - 'unbundled' license fees for software products,
 - 'bundled' product support for current unaltered control programs and application products,
 - chargeable application support by hourly rate for SE time.
- OPD do not supply any user-programmable or software driven pieces of equipment, and software product fees are not levied in any form. Application support, however, is required to implement the division's products and this is provided in 'bundled' mode.

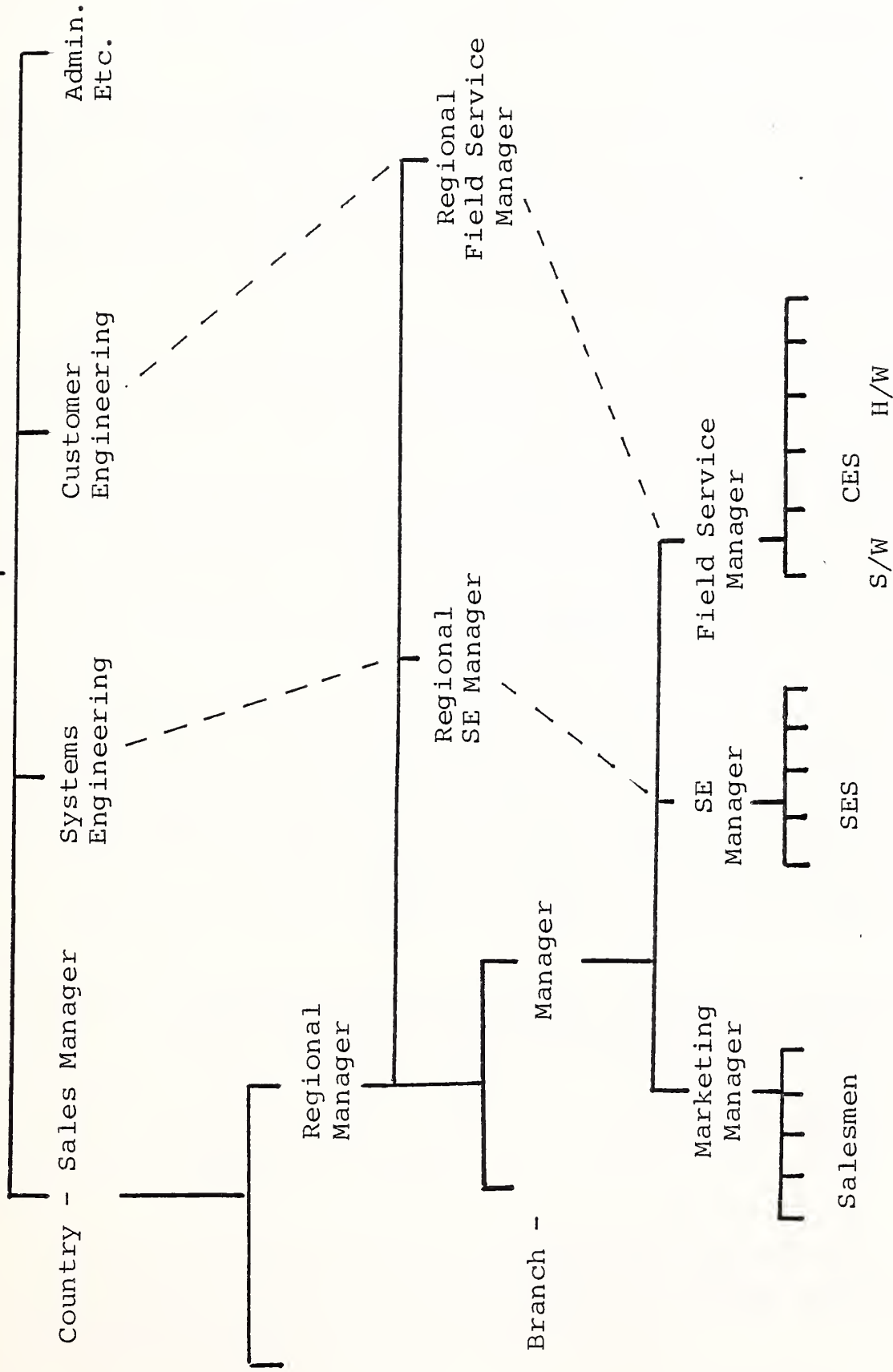
B. IMPACT ON SUPPORT ORGANISATIONS

- Unlike some of its competitors, IBM has always managed to resolve contention for its software support resources, required by:
 - Marketing departments, where support is needed pre-sales and in pursuit of customers' application goals,
 - Service departments, where support is normally post-sales and is concerned with the up-time or 'availability' of installed products.

In this it differs from some of its major competitors where the dual roles have been imposed on support teams.

- This has been achieved by defining two types of support staff with different functions, titles, career paths and reporting structures:
 - Systems Engineers (SEs) - reporting at Branch, District, Regional and country levels to Systems Engineering Managers, responsible for support to the Sales/Marketing force,

DIRECTOR



NOTIONAL DP DIVISION ORGANISATION CHART

EXHIBIT II - 2

- Customer Engineers (CEs) - a title normally associated in the non-IBM users' minds with hardware maintenance but applying equally in the IBM organisation to the support of operating systems and other software products. CEs, like SEs, have a hierarchical reporting structure incorporating Field Service Managers at the different levels.
- SE Managers and CE Managers report to general managers in their day-to-day line management functions at whatever level they operate, that is, a Branch SE Manager reports to his Branch Manager for line functions and to his District or Regional SE Manager for technical functions. The structure is illustrated for DP Division in Exhibit II-2.
- The latest (1979) DPD announcement of the introduction of the 4300 Processors has been accompanied by organisational changes affecting both Marketing and Software servicing functions. These changes are defined in later sections of this report. At this point it is sufficient to say that they do not impact the reporting or career structures; they affect mainly the way in which DPD does its business, and its profile to both the d.p. professional staff and the end-users within customer organisations.
- GSD has essentially the same reporting hierarchy and functions for its support staff as DPD. The same titles of SE and CE are used and they refer to the same activities. However for reasons which will become clear later they have not rejigged their support policies in recent product launches and have therefore not needed any organisational changes.
- A somewhat different set-up is found in OPD. Here SEs have their analogue in the Market Support Representatives whose functions include:
 - problem definition,
 - procedure specification
 - customer training
 - follow-up evaluation studies
 - general support to Sales Executives.

- Links between GSD and OPD are reasonably close. OPD already implements systems with communications facilities, talking to System/34 and /32. The general IBM trend is towards further unbundling. One must therefore expect unbundling to shortly reach OPD also.

C. THE MAIN CHANGE - DP DIVISION

- On January 30, 1979, together with the 4300 launch DPD announced a revision of its software services. The revision changes the way the company provides programming services for selected System Control Programs (SCPs) on suitable IBM machines and for selected Licensed Programs (LPs). The changes were designed to improve IBM responsiveness to programming problems while offering users a choice of optional Local Program Support.
- A new support organization lies at the heart of this more modular approach to software service which comes into full effect on January 1, 1980.
- If users encounter problems with the selected SCP's or LP's and wish for IBM assistance, their first action under the new scheme will be to telephone the new IBM Support Centre currently being established for each national market. Software CEs at the Centre, who will include product specialists capable of giving authoritative advice and assistance, will have direct access to the data base in IBM's RETAIN (Remote Technical Assistance and Information Network System). The RETAIN data base contains information on fault symptoms and 'fixes', service techniques and tips, and recent engineering changes.
- With the telephoned assistance of software CEs in the Centre, users should be able to diagnose problems and determine available solutions in the majority of instances. So users taking advantage of the Centre's telephoned support, which is free and available anywhere in the country, can benefit from speedier service by avoiding CE travelling time.
- Users can also enlist the help of IBM maintenance and service aid programs when trying to resolve software problems. Several new programs in this category were announced with the 4300 Processors.

- If the user cannot resolve his problem by telephone he can still get help - through a complementary service called Local Program Support. With the users agreement, the Centre will despatch IBM technical staff to users' premises when needed.
- Users wishing to avail themselves of this service can enter into a support agreement, for which they will pay a fixed monthly charge. Alternatively, users can elect to be billed at an hourly per-call rate. The approach the user chooses will no doubt depend upon which one is likely to contribute most to minimising his total system costs.

D. SYSTEM SOFTWARE IMPLICATIONS

- The impact of the new policy is greatest on system software because:
 - the majority of the products selected for the new maintenance service are system software routines.
- These are best summarised by saying they are the modules required for the new Releases of:
 - DOS/VS
 - VM/370
 - OS/VS1
- The main effects are:
 - software license and maintenance charges will form a larger percentage of users' expenditure. Rises of from 100% to 300% of previous charges have been calculated by observers, and result in software's percentage of total system costs changing as follows:
 - 3% rising to 13%, for full-function systems,
 - 8% rising to 14% for entry level systems.

- more easily controlled obsolescent of software, versions only being supported if current,
- increasing dependence of users on IBM for support, with possible chaos among certain semi-educated users,
- dissatisfaction among IBM software specialists due to the deskilling of their work and its progressive reliance on on-line computer assistance,
- blanking-off of the PCM opposition,
- increased flexibility available to IBM for future manipulation of software tariffs.

E. APPLICATION SOFTWARE IMPLICATIONS

- The new software maintenance service does not at present apply to any IBM application software products, since none are included in the list of Designated Licensed Programs, see Exhibit II-3. There is, however, nothing to prevent new application modules being added as they are issued. IBM's present policy is designed not to harm existing business relationships by making a charge for anything that was previously free.
- All Licensed Products on the list are either new products or were chargeable previously. Software support services are continuing as before for all products outside the revised scheme.
- No new application products were issued at the start of the new scheme.
- However, there has also been an accompanying major shift of emphasis in the way DPD expects to sell mid-range mainframes - 4341 and below; and this it is which will affect the application development market for IBM mainframes.

LICENSED PROGRAM FOR WHICH THE REVISION FOR IBM SOFTWARE SERVICE WILL APPLY

| LP NO | LP NAME | FEATURES AFFECTED |
|------------|--|---|
| 5735-D16 | SPPS II | |
| -XR1 | Host Command Facility | |
| -XX2 | NOSP | |
| -XX3 | SSP for ACF/NCP/VS | |
| -XX6 | NCCF | |
| -XX8 | NPDA | |
| 5736-CB2 | ANS COBOL/DOS Compiler | |
| -LM2 | ANS COBOL/DOS Library | |
| -LM4 | PL/1 DOS Resident Library | |
| -LM5 | PL/1 DOS Transient Library | |
| -PL1 | DOS PL/1 Optimising Compiler | |
| -PL3 | DOS PL/1 Optimising Compiler & Library | |
| -RC3 | VIDEO/370 DOS | Various CICS Features Nos 6038, 6039, 6040 |
| -RG1 | RPG II DOS | Various Auto Reports Nos. 6017, 6018, 6019, 6020 6021, 6035, 6036, 6037 |
| 5740-XR5 | VSPC - OS/VS1 | |
| 5746-AM2 * | VSE/VSAM | Space Management Features Nos. 6073, 6074 |
| -CB1 | COBOL DOS/VS Compiler & Library | |
| -LM3 | FORTAN IV DOS Library | |
| -LM4 | COBOL DOS/VS Object Library | |
| -RC3 | ACF/VTAM for DOS/VSE | Multi-Network Feature No. 6059 |
| -RC5 * | BTAM-ES | |
| -RC7 * | ACF/VTAM-E | |
| -RG1 | RPG II DOS/VS | |
| -SA1 * | VSE/IPCS | |
| -SM2 | Sort Merge DOS/VS | |
| -SU1 * | 14XX EP | |
| -TS1 * | VSE/ICCF | |
| -UT3 * | VSE/DITTO | |
| 5746-XC4 * | DMS/CICS/VS | Application Generator |
| -XE2 | Advanced Functions DOS/VS | |
| -XE3 * | VSE/POWER | RJE Feature Shared Spool Feature |
| -XE6 * | Job Entry Program | |
| -XE7 * | VSE/Access Control (LOGREP) | |
| -XE8 * | VSE/Advanced Functions | |
| -XR3 | VSPC DOS/VS | |
| -XXC | DB/DC Data Dictionary | |
| -XX1 | DL/1 for DOS/VS | |
| -XX3 | CICS/VS | |
| -XX7 | DL/1 Entry-DOS/VS | |
| 5748-AP1 | APL/VS | |
| -F02 | VSPC FORTRAN | |
| -MS1 * | IPF for System IPO-E | |
| -SA1 * | VM/IPCS-E | |
| -UT2 | Utility Off-line 3800 | |
| -XE1 | VM/System Extensions | |
| -XE6 * | File Transfer Program | |
| -XP1 * | VM/RSCS Networking | |
| -XXB * | DMS/CMS | |
| -XXC * | VM/Interactive File Sharing | |
| -XXE | Document Library Facility | |
| -XX1 | BASIC/VS | |
| -XX8 | VM/BSE | |
| -XX9 | Document Composition Facility | |

EXHIBIT II-3

* New Licensed Program

- DPD announced a change from the policy of selling high-cost, low-volume systems to one of selling low-cost, high-volume. Consequently, IBM sees three methods of implementation, being candidates for the tactics to be adopted in individual sales situations.
- IBM expects 4300s to be installed in one of the following three ways:
 - IBM provides SCP and utility software, and something called "application enabling" software.
 - IBM provides standard systems software as above plus application "code" modules fully coded and documented, but requiring customer implementation and integration, if destined to run alongside other applications.
 - IBM provides dedicated "application machines" comprising system software and off-the-shelf application products.
- "Application enabling" software remains a nebulous concept. IBM has not given any examples of it. At its minimum, it could be taken to include languages, interactive development aids, and data management facilities.
- "Code" modules mean fully developed application systems to run in a non-dedicated machine environment.
- Whereas, the two methods already described both require some support from the DP department, the third and last does not. The "application machine" is the complete "black box" installed and commissioned by IBM.
- In IBM's mind, the new market stance represents a major software opportunity for all types of service companies, as they have no intention to offer turnkey solutions on the 4300.
- IBM is prepared to sell, under license, application systems developed by other organizations.

F. IMPACT ON REVENUES

- At the time of announcing the separate software maintenance charges, IBM stated that the new policy would not result in a noticeable increase in overall cost to the customer. This was justified by saying that equivalent new versions of Licensed Products would be priced such that license charge and maintenance charge together were roughly equal to that for the replaced product. This statement needs to be looked at more closely.
- There are in practical terms four ways of considering equivalence between the old and the new policies:
 - What is the impact on invariant installations as the introduction threshold date of 1/1/80 is crossed?
 - What is the effect on configurations of equivalent power e.g. a 370/138 compared to a full-function 4331 installation?
 - What is the effect on an installation making a typical upgrade e.g. an overloaded 370/138 offloading its development work onto a separate 4331 running under VM/370?
 - What is the effect on sets of configurations of equivalent revenue earning capacity to IBM?

The first three of these are of interest to users; the last two are of more interest to IBM itself.

- The table in Exhibit II-4, compares absolute dollar values and relative percentages of price between:
 - 370/115-0 VS. 4331
 - 370/138 VS. 4341
- With no change of processor (first comparison) the user would experience a less than 1% increase in his monthly costs.

REPRESENTATIVE SYSTEM PRICING IN THE USA
OF THE 4300 PROCESSORS AND THEIR DISPLACED PREDECESSORS

(Monthly Lease Charges)

| | Entry Level Systems | | | | Full-Function Systems | | | |
|-----------------------|---------------------|-------------------------|---------------|-------------------------|-----------------------|-------------------------|---------------|-------------------------|
| | 370/115-0 | | 4331 | | 370/138 | | 4341 | |
| | <u>Amount</u> | <u>Percent of Total</u> | <u>Amount</u> | <u>Percent of Total</u> | <u>Amount</u> | <u>Percent of Total</u> | <u>Amount</u> | <u>Percent of Total</u> |
| Processor Plus Memory | \$3,206 | 50.2% | \$2,048 | 43.3% | \$ 9,054 | 48.4% | \$ 6,792 | 28.0% |
| Software | 489 | 7.7 | 661 | 14.0 | 629 | 3.4 | 3,130 | 12.9 |
| Peripherals | <u>2,691</u> | <u>42.1</u> | <u>2,016</u> | <u>42.7</u> | <u>9,016</u> | <u>48.1</u> | <u>14,309</u> | <u>59.0</u> |
| Total | \$6,386 | 100.0% | \$4,725 | 100.0% | \$18,699 | 100.0% | \$24,231 | 100.0% |

EXHIBIT II-4

- By changing to a 4300 of equivalent capability (second comparison), a standard Model 138 user's software charges would increase by anything up to 200% i.e. from \$800 per month to \$2400. These figures represent 4% and 25% respectively of the total monthly lease charges. At the same time he would experience a 50% drop in his total bill.
- A user leasing a 4331 under VM to run beside his 138 (third comparison) would add 125% to his software bill, while adding 27% to his overall costs.
- Comparing total costs of 2 x 370/138 against 2 x 4331 plus 1 x 4341 at approximately \$38,000 per month (fourth comparison), we see that IBM will draw at least 12% of its revenue from software, whereas it previously drew 4-5%.

G. CONTRACT DIFFERENCES IN THE THREE DIVISIONS

- Standard contracts for hardware and software exist in both DPD and GSD. In OPD, only hardware purchase and lease/rental agreements are in use.
- The major difference between DPD and GSD contracts for Licensed Program is in the classification of support services provided.
 - DPD classify Programming Services into A, B and C, and support into Central and Local,
 - GSD offer Central Service, Local Service and Local Assistance.
- DPD are about to introduce amendments to their software products agreement to cover the new charges for Local Support.

H. RECOMMENDATIONS

- The options open to Philips can be summarised under two headings:
 - adopt a pragmatic "semi-bundled" approach to software support similar to that of G.S.D.
 - go for "progressive unbundling" with "rebundled" package systems, as evidenced by DPD's organisation.
- Under the first option, the advantages offered when compared to a "bundled" policy are:
 - software products can still recover their development costs over planned life-times,
 - software products can earn their planned proportion of revenue,
 - the growth of software services on an ad hoc basis can be controlled by correct local pricing, thereby ensuring that valuable resources are funnelled into activities which best serve to achieve the company's targets.
- Corresponding disadvantages are:
 - bundled presales support is increasingly going to need to be supplied on a more miserly basis, thus spoiling the image of the organisation (Philips),
 - the use of a straightforward and simple software tariff limits the manoeuvrability for the future.
- Turning to the second option, advantages felt would be:
 - scarce software resources can be used most productively,

- users can be as self-sufficient as they like,
 - there is plenty of room in the software tariff for future adjustments of price,
 - vendor control of upgrade can be maximised,
 - competition can be locked out from the customer base.
- The corresponding disadvantages are:
 - complexity of tariff; unless the customer base is as captive as IBM's there is a high probability of customer loss on introducing a complex scheme,
 - difficulty of maintaining the tariff - the complexity of DPD's structure and organisation requires substantial computer support,
 - high disruption factor on support staff if deskilling of software maintenance is carried to excess.
 - Specific components of any new policy, which are recommended by INPUT for inclusion, are:
 - design the tariff to distinguish products according to their function:
 - control program
 - utility
 - language processor
 - database handler
 - application product
 - subroutine.

- configure and rebundle well-balanced and powerful software sets which can be sold by the direct sales force to the end-user,
- encourage OEM sales by designing a modular OEM software tariff which is lower-priced than that of and is not available to the end-user,
- maintain minimum levels of bundled education/training,
- develop a mobile in-house systems house effort for selective use in prestige accounts,
- encourage the development of application-oriented software tools by promoting a user group for OEMs and end-users with Philips taking an active part,
- establish a sound policy with regard to systems/software houses, recognising the crucial role of the services industry in the placing of future installations of all sizes, right down to the micro-based very small business systems (VSBS). Get known as the friend of the OEM.

III SUPPORT IN DP DIVISION

III SUPPORT IN DP DIVISION

A. 4300 AS THE VEHICLE FOR A POLICY SWITCH

- It is always easier for a computer manufacturer to introduce a general change of policy if it is done alongside the announcement of a new range of equipment. IBM had delayed the launch of the development 'E' Series for as long as was needed to assemble all the pieces of its strategy. When the 'E' Series was unveiled in the form of the 4300 Processors earlier this year, it became clear to observers that this was not just a tactical replacement of the 370/115 and /125, but a major rearranging of its policies to take the company into and a good distance through the 1980s.
- The launch and its accompanying announcements demonstrated that attention had been paid to:
 - revitalising IBM's slice of the mid-range mainframe market, hitting back at the plug-compatible mainframe vendors and attacking the concept of polarisation between large and small systems,
 - counter attacking against the long-term erosion of its market caused by the success of the minicomputer and its vendors in the business DP sector,
 - addressing the problems of staffing the DP industry both for users and for IBM itself, with salesmen and support staff productivity high on the list of priorities.
- The industry had expected the advances in LSI technology to be applied to the new range, but no one was prepared for the dramatic increases in price/performance which 4300 represented. IBM could not afford to let the mid-range user down, since he has been the company's mainstay for so long. The 4300 has now therefore put paid to the argument that medium-sized processors are dead and that everyone will go for the small or the very large.

- Over the past five years the concept of DDP has steadily gained in acceptability. In spite of being somewhat hard to define and in spite of not up to now having the blessing of IBM (because it appeared to threaten the large centralised 370 sites with inroads from the mini manufacturers), it has gained in popularity. People now believe that it is an idea which has reached its time.
- This winning of acceptance has been due to the success of the mini in introducing "user-friendly" computing at the operational level within organisations. IBM has had to bow to this trend, and with both the 8100 and 4300 processors now available has clearly fallen in with the fashion. In fact IBM will both capitalise (now that it is ready) on the trend and give it even greater impetus by being seen to have made it "respectable".
- But for IBM there are problems engendered by this change of tack:
 - How to sell the multiple systems that DDP implies,
 - How to avoid confrontation with the users' central DP management,
 - How to give support to an ever-growing number of installations with a finite support staff,
 - How to maintain the growth of its annual revenues, when the competitive environment is constantly forcing price/performance concessions.
- In answer to these challenges, IBM has initiated with the 4300 launch a complete overhaul of its previous commercial postures.
- In this new era of DP, says IBM, it will not be possible to maintain the levels of free support and service, to which customers have grown accustomed without radical changes in organisation of both these components of the total offering. Hence the new policies for:
 - support - sell DDP products through regional and branch Customer Centres, which act as 'clinics' or communal clearing-houses for customers' problems during presales, preinstallation periods,

- service - package preconfigured, system software sets (System IPO/Es), pretested in the factory for immediate "load and go" after hardware installation, doing away with the old-fashioned, long-winded system generations.
- support system software post-sales by national telephone-answering systems which access relevant specialists for calling back users with verbal fixes over the telephone; all follow-up on-site visits to be chargeable by monthly software maintenance fee or on demand per call-out.
- application - encourage use of the VM/370 operating system by providing a VM remote on-line testing service operated by the RCS groups at a remote supercentre ; thus relieving software Branch Offices of individual on-site hand-holding during testing, or at least containing the amount of service required to a level where headcount increases are also lowered.

- Throughout the accent is on productivity.
- Enable the branch salesman to reach a larger sales quota by giving him the back-up of the regional Customer Centre for:
 - seminars on particular topics of interest to prospects,
 - demonstrations for serious enquirors,
 - specialist expertise pre- and post-sales,
 - trouble-shooting before and during commissioning.
- Split both sales and support staff (SEs) between Branch and Customer Centre so that the Branch can concentrate on account control and 'cold prospecting', while new business is channelled to the centres where the full range of sales support can be most economically deployed.

B. INTRODUCTION OF SOFTWARE MAINTENANCE CHARGES

- Having applied the lesson of 'productivity' to the salesman and to the SE, it is logical to apply it also to the post-sales support function, namely to the software CE. This is what IBM has now done. (His counterpart the hardware CE has for some time been given aids in the forms of remote diagnostics, service processors and the RETAIN database).
- Observers had forecast that eventually software licenses would be levied on operating systems (SCPs) as well as on other system software products. In fact, as we shall see, this has now been introduced along with the new-versions of SCP announced with the 4300, but in a fairly subtle manner. What was not anticipated was that a separate charge would be made for maintaining software nor was the manner in which that was levied predicted. It all makes sense, however, when viewed from the twin standpoints of:
 - productivity - IBM's slogan, designed to some extent for external cosmetic purposes,
 - organisation - the sheer practicality of running a servicing operation on a growing number of customer installations.
- Revenue enhancement is a minor consideration in the introduction of the maintenance charge. That comes in via the new tariff structure and the System IPO/E (Installation Productivity Option/Extended) examined later in this section.
- Before describing the details of the new software support and maintenance facilities, we need to fix clearly in the reader's mind the previous support policy which has been subjected to these changes. By doing so it will become clear to what extent the new policy cuts across the concepts of the old and to what extent it is merely an evolutionary development of it. In changing direction IBM has had to be careful not to upset its customer base. This need for caution has given rise to:
 - a complex grafting of the new policy onto the old,

- inevitably, some confusion of terminology where different terms apply to similar, but not identical, concepts on the old and new systems,
 - a transitional period where a mixture of the two policies can be in force.
- From this point in the report, the glossary of terms contained in Appendix E should be used to assist the reader to follow the intricacies of the support mechanism.

PROGRAMMING SERVICE CLASSIFICATION

- The procedures in force, prior to the latest (30/1/79) notification of a change, were centred on the type of programming service which was applicable to the three grades of licensed program products. These were and are known as:
 - Programming Services A, B and C.
- If a product is on Programming Service A:
 - central Maintenance is provided free of charge,
 - local Support is also provided free.

The full responsibility is IBM's.

- Maintenance is here defined as the function of assessing and correcting design errors, the issuing of program temporary fixes (PTFs) and the provision of service updates to issued software. It is normally carried out at the laboratories and centres responsible for the development of the products in the first place.
- Support is defined as any or all of:
 - assisting customers to diagnose problems and report on them (see APARs in the Glossary)

- helping customers update products if applicable up-dates have by mistake been overlooked,
- providing emergency corrections or bypasses to design errors,
- generally keeping a customer "on-the-air".

- Products on Service B are:

- maintained free of charge,
- supported locally without charge, but from the Branch SE staff not the software CE function, and only on user request, implying possible delay until service personnel are available.

Products originally on Service A are downgraded to Service B once the level of APAR notification has fallen below a pre-set level. Notice of IBM's intention to regrade a product is normally given 6 months before the regrading date.

- Products on Service C are:

- not maintained centrally
- supported locally on a chargeable basis.

- Generally speaking:

- A grade products are current,
- B grade are obsolescent,
- C grade are obsolete.

- Products released shortly before the 4300 announcement were not classified A, B or C, as for instance in the case of the 8100 utilities and control programs. The grades still, however, apply to Licensed Products, for which they have already been issued. The revised support scheme, which will be fully implemented by 1/1/80, now introduces two sources of support, the central and the local.

NEW SOFTWARE SUPPORT

ORGANISATION

DUE FOR IMPLEMENTATION I/I/80

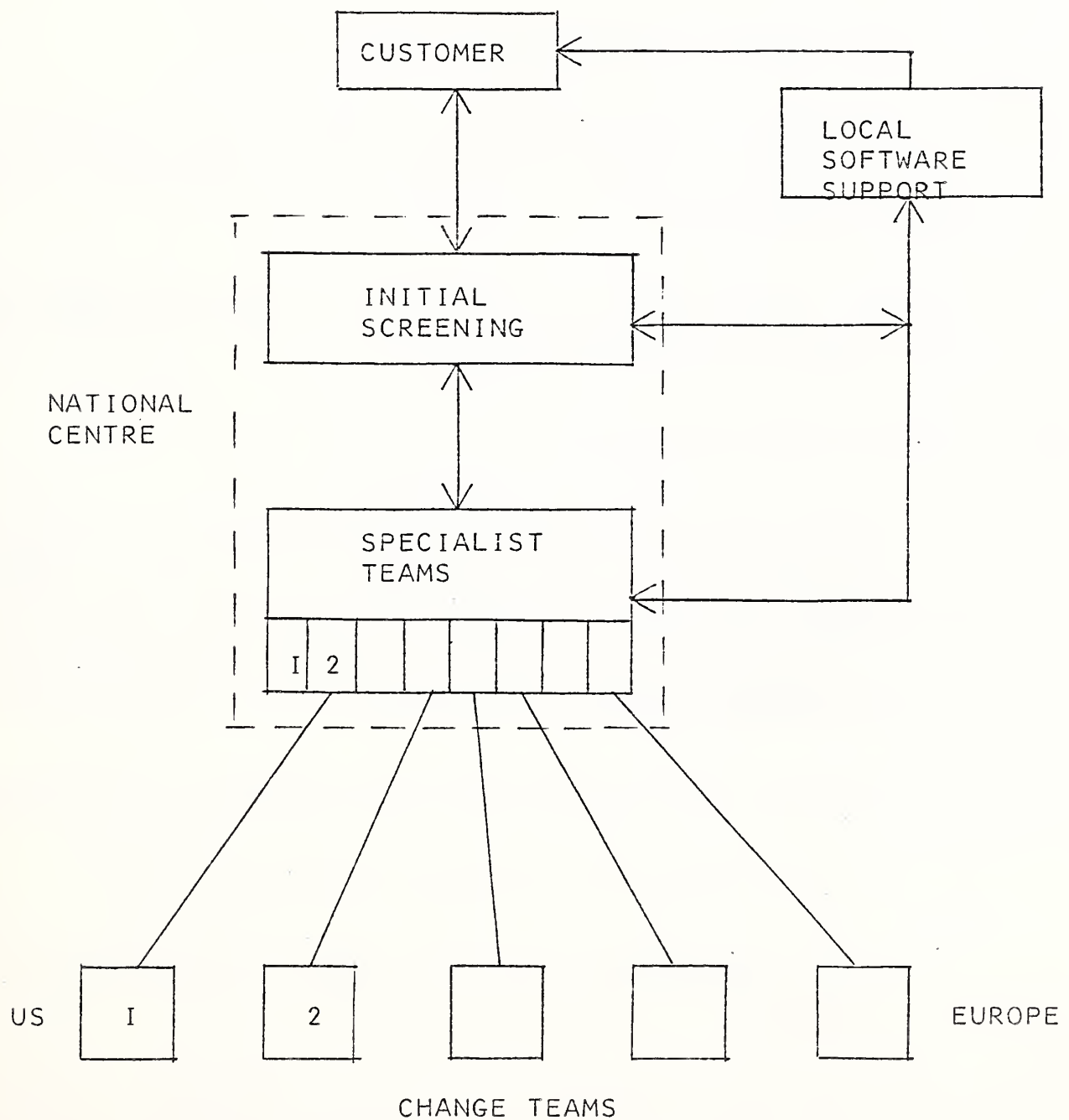


EXHIBIT III-1

- Besides the A, B, C categories, two other levels of support were previously offered:
 - for SCPs, at the level A until discontinued by IBM at 6 months notice,
 - for IUPs and FDPs, on something called Extended Support requiring specification at branch level.

REVISED SCHEME FOR SOFTWARE SUPPORT

- The revised service scheme is based on a centralised form of support provided at national support centres. A schematic of how the system will operate appears in Exhibit III-1.
- Appendix E contains IBM's latest specification of the facilities, and detailed interpretation of how they will operate.
- The salient factors to note are:
 - Problem Determination is formally the responsibility of the users, but IBM leaves the door open to give them the necessary free assistance. IBM's main objective in isolating this function is to allow it to refuse central support to PCM customers (this will no doubt be fiercely fought by the PCM vendors);
 - One form of such assistance will come via diagnostic software aids;
 - likewise Problem Source Identification is a user function,
 - Local Program Support will only be incurred with the agreement of the customer,
 - Local Program Support may be selected for certain LPs and not for others, which would then have to be supported, at an hourly rate on demand,

SUPPORT SOURCES FOR THE NEW
CLASSIFICATIONS OF PRODUCTS

| CLASS - SCP or LP | SUPPORT SOURCE | |
|----------------------|----------------|---------|
| | CENTRAL | LOCAL |
| I or Designated | FREE | CHARGED |
| II or Non-designated | - | FREE |
| DECLASSIFIED | - | CHARGED |

- * CLASS I - VSE, VM/REL 6, VS1/REL 7
- * DESIGNATED - See Exhibit II-3
- * CLASS II or NON-DESIGNATED - OTHER PREVIOUSLY SUPPORTED PRODUCTS.
- * DECLASSIFIED - PREVIOUSLY UNSUPPORTED PRODUCTS

EXHIBIT III-2

- Problem Diagnosis is strictly speaking an "IBM assists" function,
 - the prescribed period for applying service updates is rumoured to be either 90 or 75 days; this is still to be determined,
 - there is no mention of any special procedures for dealing with System IPO/Es; they will be handled as the sum of their separate parts.
- The new system introduces another classification of program products:
 - Class I and Class II SCPs.
 - Designated and Non-designated LPs.
 - Class I SCPs are those which come under the revised scheme; Class II SCPs are those which continue to be supported under the previous arrangements.
 - Designated LPs (those on the list in Exhibit II-3) come under the new scheme; the remainder (Non-designated) do not, and are therefore supported as before.

C. COMPLEXITY OF THE SOFTWARE TARIFF

- The present situation turns out to be very complicated.
- Exhibit III-2 summarises the position with regard to the sources from which users can draw support, and defines which SCPs are currently Class I.
- Exhibit III-3, on the other hand, summarises the status of Program Products with respect to being free or charged for.
- The status of the previous Programming Service categories is therefore that they still apply - at levels A and B - to Licensed Products. Our category of Declassified products includes those in IBM's level C and those for which only third-party support can be obtained.

CHARGING STATUS OF IBM SOFTWARE PRODUCTS
UNDER THE REVISED SUPPORT SCHEME

| CLASS | SCP | | LP | |
|-------------------|-------------------|---------------------|-------------------|----------------------|
| | LICENSE CHARGE | SUPPORT * CHARGE | LICENSE CHARGE | SUPPORT ** CHARGE |
| I/Designated | NO | YES | YES | YES |
| II/Not Designated | NO | NO | YES | NO |
| DECLASSIFIED | NO | YES | NO | YES |

KEY: YES = Charged; No = Free

* LOCAL SUPPORT UNDER

- ALPS
- ON DEMAND (HOURLY RATE FOR CE)

** LOCAL SUPPORT UNDER

- ALLPS
- ON DEMAND

EXHIBIT III-3

- Charges for LPs are made monthly, with an extra initial charge in some instances.
- Charges for other programs (covered under the Special Programs contract Amendment) may be:
 - monthly without limit to period
 - monthly for a fixed period
 - a single charge
 - monthly for a fixed period, plus an initial process charge to cover each copy of the program documentation.

D. DEVELOPMENT OF THE SYSTEM IPO/E

- The System IPO/E continues the concept previously available on 370 called SIPO.
- The concept has now been refined into a fully configured set of system software, pregenerated and tested in the factory prior to despatch to site.
- It contains SCPs and LPs, and is configured at different levels of complexity, depending on the operating system, for:
 - Batch/Interactive (IA) environment - the simplest,
 - Batch/Interactive with Data Communications (DC),
 - Batch/Interactive plus DB/DC (Database/Data Comms).
- The user must be licensed for all the products contained in it.
- At present it is offered in six packages
 - three are based on the new DOS - DOS/VSE
 - one is based on the new VM - VM/370 Release 6
 - two are based on DOS running as 'guest' under VM - VM/370/DOS/VSE.

- The VSE IPO/Es are:
 - Batch/IA
 - Batch/IA/DC
 - Batch/IA/DB/DC.
- The VM IPO/E is for:
 - Time-Sharing/Personal Computing i.e. IA.
- The VM/VSE IPO/Es are:
 - Batch/IA/DC
 - Batch/IA/DB/DC.
- Full contents, firm prices and deliveries of IPO/Es are difficult to obtain. IPO/Es are being offered on all machines running the new operating system releases i.e. 4300 and 370s, but users may still obtain all IBM program products individually for their own system generation on site.
- The advantages from IBM's own standpoint of having IPO/Es, are:
 - less support will be required if more of these standard systems get into the field,
 - users' upgrades can be controlled by hardware/software pre-requisite synergy,
 - the central DP department can be by-passed (no system programmer support requirement),
 - the 'black box' application machine can be sold directly to the end-user,
 - fewer 'specials' will be installed,
 - the hardware/software/firmware interface in future systems can be moved about and still remain concealed.

E. CONTRACTUAL CHANGES

- To date INPUT has been unable to obtain the detail of DPD's proposed changes to the "Agreement for Licensed Programs" or to the "Licence Agreement for IBM Program Products". Our prediction is that another supplement to the Agreement for LPs will be issued in the same way as that for Special Programs (CGPs, FDPs, IUPs) was issued in 1975.

F. SUMMARY

- IBM's DP Division has signalled a definite change of course, in the selling of mid-range mainframe systems:
 - this is a switch from being the company for low-volume, high-cost computing systems to the image of one selling high-volume, low cost.
- How long the change will need to take full effect depends on user reaction. INPUT estimates a period of at least two years and expects to see DP Division split into Intermediate and Large-Scale Systems divisions, in order to accommodate the two different commercial postures:
 - low-volume, high-cost applied to Large-Scale Systems,
 - high-volume, low-cost confined to Intermediate Systems.
- Further unbundling of software products is one of the tactics employed to effect this change. It has been thought necessary because:
 - multiple systems demand increased productivity on the part of all IBM marketing and servicing staff
 - salesmen,
 - systems engineering,
 - customer engineering - hardware,
 - software support customer engineers,

- IBM needs to break with the image of the company that will give plenty of free support.
- The chief features of the latest round of unbundling are:
 - the establishment of a central support function, based on:
 - a telephone trouble-shooting service, the analogue of the hardware CEs Remote Support Facility, with the important difference that this service is accessed directly by the user,
 - extension of the RETAIN data base concept to software,
 - introduction of support charges for local support,
 - less willingness to support non-current versions of program products,
 - introduction of license charges for those parts of the operating systems other than the 'kernel'.
- Revenue enhancement from local support charges is likely to be small i.e. less than 2%, but the concept provides a growth nucleus for the future.
- In order not to disrupt existing business relationships DPD is running in the new system in parallel with the lifetime of the old. Because of the different generations of IBM equipment still being serviced, there are elements of three generations of support policy at the moment in the field, all with partial applicability.
- The result is a very intricate policy, which undoubtedly requires computer-assistance on a large scale for its effective implementation.
- At the same time as introducing software maintenance, DPD has extended the concept of the System IPO. This is an exercise in rebundling, which will give better control of the software 'jungle' as well as supplying additional revenue potential in future announcements.
- For the longer-term the System IPO/E has most chance of rescuing IBM from the morass of its own mainframe software.

IV IMPACT ON SELECTED PRODUCTS OF DPD

A. ON 4300 PROCESSOR SYSTEMS

- We have said that the new software support policies have been introduced in the wake of the launch of the 4300 series of processors. It is as well then to summarise the salient features of this series and to describe its relationship to earlier and overlapping products.
- The two new processors launched are the 4331, the smallest of the 'E' series processors developed (INCA 1), and the 4341, the second largest of those developed (MAYA 1). The second and fourth processors developed have yet (if ever) to be announced.
- Both machines fall into the category of small to medium-size mainframes. They are provided with existing IBM operating systems and utility software, software products which have been issued in new releases with enhanced features and a new implementation philosophy.
- The range is a DPD product which replaces the lower end of the 370 series. The range has some overlap with the top-of-range product in GSD's 30 series, the System/38, but does not impact with DPD's previous announcement, the 8100 series.
- Whereas the 8100's are intended as satellite processors (to 370's or, now, to 4300's) for distributing processing power in a close-coupled mode, the 4300's have been designed principally as host or stand-alone processors. This is not to deny that 4300's will be distributed around organisations. It is certainly IBM's primary objective to replicate 4300 mainframes in an organisation, ensuring systems compatibility and using SNA for communication. The differences between the host and the satellite approaches are ones of:
 - size and processing power
 - mainline operating systems as opposed to specialised and limited program products.

- The 4331 has a reported MIP rate of up to 1.3 times the 370 Model 135. It is available with twice the storage and four times the power of the Model 115. It therefore replaces and obsoletes the 370 Models 115-2 and 125-2 and their earlier versions.
- The 4341 (with a quoted MIP rate 1.7 times that of 370 Model 148) has around 3 times the power of the 138, which it obsoletes together with the older 135 and the 148 itself.
- Besides making processors obsolete, the 4300's introduce obsolescence to a number of earlier disk drives. The new DASD's:
 - 3310 with 64.5 MB for the 4331 processor
 - 3370 with 570 MB for 4331 or 4341

are both non-removable with a fixed block mode of recording data in 512 byte blocks. For reasons of compatibility, selected earlier drives are also supported, but the new devices introduce a new standard which is bound to be preferred for mid-range processors in the future.

- Because of the price/performance improvements made possible by LSI technology, IBM must sell more processors to equal or better revenue budgets. Organisations will be targetted as multiple targets, able to absorb a hierarchy of processors at different corporate levels:
 - 303X or large 370 system complexes at the centre
 - multiple mid-range 370's or 4300's in operating sites
 - 8100's, GSD systems and terminals at lower levels.
- Installation of multiple 4300's must not be prejudiced by opposition from centralised D.P. departments fearing loss of control. 4300's will be sold as resilient "black-boxes", which will tolerate:
 - being sited at a distance from systems and programming staffs

- little or no systems programmer attention
 - a normal office environment, at least with the smaller models.
- The end-user is expected to require the advanced features that the manufacturers have been selling to in recent years:
 - interactive program development
 - data communications (DC)
 - database (DB)
 - DB/DC combined.

The 4300's are claimed to make these facilities available as a matter of routine. The days of lengthy and painful implementation are to be banished; the user can choose at which level of sophistication he wishes to enter and progress from there.

UNBUNDLING OF OPERATING SYSTEMS

- We have said that DPD has achieved the effective unbundling of operating system software, as part of the present revision of its policies. This has been accomplished by the "knock-on" effect of one of the other planks of the policy - the software support charge. The chain of cause and effect runs as follows.
- IBM introduces the concept of central software support at the same time making local support a chargeable item.
- Simultaneously, IBM reissues its three major mid-range operating systems - DOS/VS, VM/370, OS/VS1 - in new versions. The operating systems are available on 370 but more attractively as part of a much cheaper deal based on 4300.
- The new versions run more efficiently with the microcode assistance given on the 4300s, but are more expensive.

- The overall competitiveness of the 4300 package when compared to the equivalent power of the replaced 370s, more than offsets the increase in software costs.
- The software license costs are larger for two reasons:
 - individual LPs are more expensive than their displacements,
 - parts of the operating system which have been pared away from the executive kernel, have become chargeable LPs.
- The policy of free SCPs has thus been retained; though as we have already seen even SCPs now command a local programming charge for post-sales support.
- The principal technique has been to charge for "non-essential" modules such as POWER, VSAM, BTAM/E. This technique also offers potential for future growth, by:
 - permitting further modules to be stripped off,
 - producing more modules for later tariff structure changes.
- This process we have termed the 'effective unbundling' of System Control Programming. An example of how it would effect a DOS/VS user working in a DB/DC environment is shown in Exhibit IV-1:
 - the important components of DB/DC software are DL1 and CICS, which were and are chargeable,
 - the peripheral parts of the SCP like POWER, VSAM were not and now are.
- Moreover these newly chargeable sections though not mandatory for every environment are certainly pre-requisite for anything like IBM's "full-function" programming; hence the impetus of the software synergy.

EFFECTIVE UNBUNDLING OF SYSTEM CONTROL PROGRAMMING (SCP)

ILLUSTRATION OF FUNCTIONAL EQUIVALENCE OF DB/DC UNDER DOS/VS RELEASE 34 AND DOS/VSE (RELEASE 35) AND THE IMPACT ON LICENSED SOFTWARE CHARGES.

| | | | | | |
|----------|-------|-----------------|---|---|--------------|
| - THEN - | VS 34 | SCP | DOS POWER VSAM VTAM | - | Were Free |
| | - | LP | A F DLI CICS | - | Were Charged |
| | - | APPLICATION S/W | | - | IBM or User |
| - NOW - | VSE | SCP | DOS | - | Is Free |
| | - | LP | VSE/ADVANCED FUNCTIONS ++ VSE/ICCF VSE/POWER VSAM DLI VTAM/E CICS | - | Now Charged |
| | - | APPLICATION S/W | | - | As before |

++ = PREREQUISITE FOR DC OR DB

EXHIBIT IV-1

PRICING

- Exhibit IV-2 shows the expected price ranges of the two processors. It includes a total monthly outgoings column which is the sum of hardware depreciation, maintenance and software charges. The figures have been derived from IBM data.
- The dollar prices are based on UK prices and an exchange rate of \$2 to £1. Therefore prices in any one European country may differ according to the relative strengths of the local currency, sterling and the dollar.
- Bottom of range costs are based on a system hardware price of two times that of a minimum processor configuration. Top-end costs are based on 4.5 times that of a maximum processor configuration. This range of factors reflects (1) the current trend for processors to contribute less to total system cost, and (2) the large DASD databases possible on 4300.

A1. ON 4331 SYSTEMS

- The 4331 Processor is the entry-level system for DPD's mainframe host range.
- IBM expects users of 4331 to come from a number of sources:
 - System/360 users looking for replacement,
 - System/370 low-end users looking for growth,
 - first time users,
 - second and further locations of existing customers.
- Migration to 4331 from other IBM products can follow the paths from:
 - System/360 models 20, 25, 30 and 40
 - System/370 models 115, 125, 135, 138 and possibly 148,

| PROCESSOR MODEL | MEMORY | HARDWARE | | | SOFTWARE LICENCE PER MONTH | TOTAL MONTHLY OUTGOINGS - PURCHASE |
|--------------------|--------------|---|---------------------|----------------------------------|-------------------------------------|---|
| | | PURCHASE DEPRECIATION OVER 40 MONTHS | RENTAL PER MONTH | 24 - MONTH LEASE PER MONTH | MAINTENANCE (MMMC) | |
| 4331 | 1/2 MEGABYTE | from 4,850 | 5,812 | 4,800 | from 806 | 6,656 |
| | 1 MEGABYTE | to 17,500 | 21,000 | 17,520 | to 2,905 | 23,405 |
| 4341 | 2 MEGABYTE | from 15,500 | 18,950 | 15,340 | 2,570 | 19,370 |
| | 4 MEGABYTE | to 42,500 | 51,500 | 42,060 | 7,060 | 54,560 |

* includes allowance for software maintenance

4300 SYSTEM - DOLLAR PRICES

EXHIBIT IV-2

- less probably from System/3 (since these are GSD users open to the newly announced System/38).
- Migration from the 4331 is likely to be upwards to 4341 or to an intermediate processor (INCA 3) when one is announced later this year.
- Within the range of options allowed on 4331, the main enhancement is from a simple Batch/Interactive system based on DOS/VSE to a full-function system with DB/DC, also running under DOS.
- Database handling is offered under DL/1.
- Data Communications and Teleprocessing use CICS as the standard DOS/VS offering.
- The upgrade to DB/DC would therefore entail:
 - installing the Integral Communications Adapter,
 - siting terminals,
 - increasing disk storage for database,
 - licensing CICS and DL/1 and any appropriate utilities.
- The major cost increases would be incurred in adding disk storage and numbers of terminals. CICS is the most expensive of the new software products but its cost is small when compared to hardware costs.
- Exhibit IV-3 gives a detailed cost breakdown of an Interactive 4331 system running under VM/370 - for an in-house time-sharing application, for instance.
- Exhibit IV-4 shows the coarse breakdown of costs of the three commonest types of 4331 system:
 - simple Batch/Interactive under DOS/VSE,

EXHIBIT IV-3

4331 CONFIGURATION PRICES
FOR A VM/370 TIME-SHARING SYSTEM

| COMPONENT | | MONTHLY LEASE COST (MLC) | PURCHASE |
|--------------------|--|--------------------------------|---|
| A. | CPU | | |
| | 4331 PROCESSOR-1MB | \$1,775 | \$72,500 |
| | ADDITIONAL FEATURES | 308 | 12,455 |
| | 3278-2A CONSOLE | 111 | 3,795 |
| CPU SUB TOTAL | | 2,194 | 88,750 |
| B. | I/O | | |
| | 3310-A2 DISK STORAGE UNIT (2) | 1,196 | 43,060 |
| | 3310-B2 DISK STORAGE UNIT (2) | 1,046 | 37,660 |
| | 8809 TAPE CONTROL AND DRIVE | 290 | 10,440 |
| | 3289 LINE PRINTER-400LPM | 473 | 13,250 |
| I/O SUB TOTAL | | 3,005 | 104,410 |
| C. | TERMINALS | | |
| | 3278-2 DISPLAY STATIONS (13) | 819 | 37,310 |
| TERMINAL SUB TOTAL | | 819 | 37,310 |
| HARDWARE SUB TOTAL | | 6,018 | \$230,470 OR \$ 5,760/MO |
| D. | SOFTWARE | | |
| | VM/370, VM/BSE, VM/RSCS DIRECTORY MAINTENANCE, VSE/VSAM, VM FILE SHARING, VM/IPCS EXTENSION, VS/APL | 1,100 | PLUS 1,100/MO FOR SOFTWARE LICENSE AND MAINTENANCE |
| SOFTWARE SUB TOTAL | | 1,100 | |
| SYSTEM TOTAL | | \$7,118 | \$6,860 |

- Interactive Time-Sharing under VM/370,
 - 'full-function' i.e. Batch/Interactive plus DB/DC again running under DOS/VSE.
- Exhibit IV-5 is the result of analysis of the three previous configurations plus an additional configuration with DC but without database (DB). The table shows the percentages of total monthly outgoings on a purchase plan, which are contributed by the four major components of cost:
 - Hardware purchase, taken as the outright purchase price divided by 40, i.e. spread over 40 months,
 - Hardware maintenance, - Minimum monthly maintenance charge or MMMC,
 - Software Licence fees for all the licensed program products,
 - Software support charges for Local Program Support.
 - The table shows the hardware price component accounting for around 70% of costs, while software takes between 15% and 18%.
 - There is a slight tendency for software costs to rise as a function of configuration size, but this is not a significant change. Hardware is still the dominant revenue earner. Upgrading on the 4331 maintains roughly the same balance between hardware and software.

A2. ON 4341 SYSTEMS

- The 4341 Processor is the system required for a growth path from 370 to IBM's future announcements.

EXHIBIT IV-4

COMPARATIVE SYSTEM DOLLAR PRICING OF 4331 CONFIGURATIONS

| 4331/ MEMORY/ ENVIRONMENT | PURCHASE DEPRECIATION OVER 40 MONTHS | RENTAL PER MONTH | 24-MONTH LEASE PER MONTH | HARDWARE MAINTENANCE PER MONTH | SOFTWARE LICENCE PER MONTH | PURCHASE TOTAL MONTHLY OUTGOINGS |
|--|---|---------------------|--------------------------------|--------------------------------------|----------------------------------|---|
| 1/2 MEGABYTE/ DOS/VSE Batch/IA | 4,850 | 5,812 | 4,800 | 806 | 1,000 | 6,656 |
| 1 MEGABYTE/ VM/370 IA | 5,760 | 7,000 | 6,018 | 960 | 1,150 | 7,870 |
| 2 MEGABYTE/ DOS/VSE Batch/IA/DB/DC | 10,800 | 12,500 | 11,300 | 1,800 | 2,500 | 15,100 |

- A user would move to 4341 from:
 - top-end 360s i.e. 360 models 50 and 65
 - mid-range 370s i.e. models /138 through /158
 - eventually, from 4331 or any processor shortly to be announced between the two current 4300s. (A 4336 is rumoured to be launched as a field upgrade of 4331 sometime at the beginning of 3rd quarter 1979).
- Migration from 4341, (which must be some way into the future) would be to:
 - MAYA 2 (rumoured to be announced mid-1980 as the 4351),
 - bottom-end of 'H' Series (due to be unveiled sometime in 1980).
- The major upgrade possibility while on 4341 is the move to DOS/VSE running as guest under VM. This need not involve an attendant hardware upgrade but is most likely to be undertaken if migration to other equipment is anticipated, since VM is a useful tool for testing new environments.
- Detailed costs of a typical 4341 configuration are illustrated in Exhibit IV-6. The environment chosen is for DB/DC under DOS/VSE.
- An analysis of different 4341 environments shows that software contributes between 14% and 15% of costs, while hardware still occupies the lion's share at 75%. This is indicated in Exhibit IV-7, in which, similarly to Exhibit IV-5, Hardware Purchase is calculated as being spread over 40 months.

B. ON 8100 INFORMATION SYSTEMS

- The 8100 Systems were launched as DDP (Distributed Data Processing) Processors.

TYPICAL 4331 CONFIGURATION COSTS

HARDWARE AND SOFTWARE AS PERCENTAGES OF TOTAL MONTHLY OUTGOINGS

| OPERATING ENVIRONMENT | HARDWARE PURCHASE | MAINTCE. (MMM) | SOFTWARE LICENCE | SOFTWARE SUPPORT |
|-----------------------|-------------------|----------------|------------------|------------------|
| Batch/Interactive | 72 | 12 | 14 | 1 |
| Interactive | 73 | 12 | 14 | 1 |
| B/IA + DC | 70 | 12 | 16 | 2 |
| B/IA + DB/DC | 71 | 12 | 15 | 2 |

EXHIBIT IV-5

- With its installed base of large users, it is particularly interesting to review IBM's responses to the cry for DDP, and to show how these merge naturally with the advent of SNA (Systems Network Architecture) and recent announcements (8100 and 4300 series processors) into an overall master plan for providing a total capability for all sizes of organisations in an increasingly communications-orientated world.

PRODUCTS AND STRATEGIES

- IBM's first foray into Distributed Data Processing dates back to late 1973 when it introduced the 3790 Communication System which offered remote users the processing capabilities of a machine at the low end of the System/370 family, but with a catch : i.e., the 3790 was completely dependent upon the host.
- Although billed as a DDP product, it was in reality a variation on the theme of centralized processing as all programs were written and supported at the host and frequently downloaded to the 3790 at the remote site. This served to leave the remote 3790 user vulnerable to the host becoming inoperative.
- Nonetheless, the product offered good terminal screen formatting and data entry and did serve to provide some level of offloading of the host. Additionally, it was (is) fully supported by IBM and is an integral element in the company's Systems Network Architecture (SNA).
- As the product moved into the marketplace a number of shortcomings soon surfaced, including insufficient disk capacity, operational difficulties due to a lack of software support at the site, inflexibility to the attachment of foreign terminals and its relatively high cost in comparison to minicomputers (which are minimally supported).
- Subsequent 3790 upgrades have since enabled local programming and permitted remote 3270 terminals to be attached via suitable data links.

EXHIBIT IV-6

4341 CONFIGURATION PRICES FOR A DOS/VSE FULL FUNCTION SYSTEM

| COMPONENT | MONTHLY COST (MLC) | PURCHASE |
|---|-----------------------|---|
| A. CPU | | |
| 4341 PROCESSOR-2MB | \$5,975 | \$245,000 |
| 3278-2A OPERATORS DISPLAY | 67 | 2,680 |
| 4633 75 KEY OPERATOR KEYBOARD | 14 | 560 |
| CPU SUB TOTAL | 6,056 | 248,240 |
| B. I/O | | |
| 3380-1 STORAGE CONTROL | 1,450 | 62,350 |
| 3370-A1 DISK DRIVE AND CONTROL | 900 | 35,100 |
| 3370-B1 DISK DRIVE (3) | 1,800 | 70,200 |
| 3411 TAPE CONTROL AND DRIVE | 570 | 23,645 |
| 3410-1 TAPE DRIVE (20 KB) (3) | 669 | 28,080 |
| 3203-5 PRINTER-1200 LPM | 1,255 | 38,320 |
| 1416 PRINT TRAIN | 101 | 2,665 |
| I/O SUB TOTAL | 6,745 | 260,360 |
| C. TERMINALS | | |
| 3274-1A TERMINAL CONTROLS (SNA) | 498 | 22,415 |
| 3278-4 3440 CHAR. DISPLAYS (45) | 3,510 | 157,950 |
| 3274-1A TERMINAL CONTROL (SNA) | 444 | 19,985 |
| TERMINAL SUB TOTAL | 4,452 | 200,350 |
| HARDWARE SUB TOTAL | 17,253 | \$708,950 OR 17,724/MO |
| D. SOFTWARE | | |
| DOS/VSE, VSE:AF, VSE/POWER VSE/ICCF, ACT/VTAME, VSE/ ACCESS, VSE/IPCS, COBOL, CICS/ DOS, DLI/DOS | 2,500 | PLUS 2,500/MO FOR SOFTWARE LICENSE AND MAINTENANCE |
| SOFTWARE SUB TOTAL | 2,500 | |
| SYSTEM TOTAL | 19,753 | \$20,224 |

- Early user difficulties have contributed to a checkered reputation for the product with most of the marketplace regarding IBM (until recently) as only giving grudging support to the DDP concept.
- However, the above perspective has changed significantly over the last 18 to 24 months with the introduction of the Series/1, the Systems/34 and /38, and especially the 8100 a specific DDP processor with 3790 migration capability.
- The System/34, which may operate with up to 72 local and remote terminals is aimed at the first-time use within the small business computer market. However, it supports both the bit-oriented synchronous data-link control (SDLC) communications protocol as well as the older character-oriented binary synchronous communications (BISYNC) protocol. These features effectively enable the System 34 to function as a node in a DDP network with a 370 or 30XX host.
- The System/38, supporting up to 40 local or 256 remote terminals, may also be connected under SNA/SDLC to a 370 host.
- The Series/1 represents one of the most flexible and price competitive products announced by IBM to date. It has the capacity to be used as a basic building block by either sophisticated end users or system houses that are configuring DDP networks. It may function as either a powerful remote machine or a limited capacity host.
- Series/1 may have a variety of foreign peripherals attached to it while operating with a throughput capability approaching a 370/138. It may also be operating in a 3270 emulation mode enabling degraded operation with a 370/30XX host.
- It is possible that a combination of events may have contributed to IBM's recent and expected flurry of DDP related product introductions. These include:
 - High growth opportunities in the minicomputer and small business computer market.

TYPICAL 4341 CONFIGURATION COSTS

HARDWARE AND SOFTWARE AS PERCENTAGES OF TOTAL MONTHLY OUTGOINGS

| OPERATING ENVIRONMENT | HARDWARE PURCHASE | MAINTCE. (MMM) | SOFTWARE LICENCE | SOFTWARE SUPPORT |
|---------------------------|-------------------|----------------|------------------|------------------|
| Batch/Interactive + DC | 75 | 11 | 12 | 1 |
| Batch Interactive + DB/DC | 76 | 13 | 10 | 1 |
| DB/DC + Timesharing | 74 | 12 | 13 | 1 |

EXHIBIT IV-7

- "An idea whose time has come", i.e., DDP (which is probably closely tied to the user's desire to break or slow the mainframe upgrade cycle).
 - Increasing competitive pressures by plug compatible and minicomputer vendors on IBM's traditional lines of business.
 - Initiation of a long-term product/market strategy tying all of the above together and consistent with corporate revenue growth requirements in the post-1980 time frame.
- Although some confusion did and does exist in the marketplace as to which operating division within IBM has the DDP charter, steps are being taken to resolve this short-term problem. In the interim, the Series/1, System 34 and 38 and to a greater extent the 8100, offer a powerful combination of products in support of the DDP concept.

PROJECTED STRATEGIES AND ORGANISATIONS

- IBM's past and current strategy can best be characterized as one of containment. This is in large measure due to the success of the Data Processing Division (DPD) in selling ever larger central processors in order to drive IBM software systems.
- However, the poor performance of IBM software for interactive and transaction processing is precisely what opened the door for distributed processing (both conceptually and economically). The controlled distribution of this excessive large scale software burden must be the keystone of IBM's future DDP strategy.
- While it has appeared that IBM is less than enthusiastic about DDP, it is more a question of timing rather than failure to recognize the economic significance of DDP. INPUT's conclusions concerning the situation from IBM's point of view is as follows:
 - In order to maintain traditional growth IBM must achieve revenues in excess of \$30 billion by 1982, and in excess of \$50 billion by 1987.

- IBM's data processing revenues are currently heavily weighted towards central general purpose systems and associated peripherals (greater than 75%).
- Increasing proportions of data processing dollars are being spent for: minicomputer systems, terminals, data communications services (and hardware) and program products. These are areas in which IBM has not been traditionally strong.
- It appears obvious that IBM must increase market penetration in all of the areas associated with DDP. Moreover, no one questions the fact they have the resources (financial, management and technological) to be successful.
- This being so, why has IBM not pursued these markets more aggressively and with more success? Several answers come to mind:
 - They haven't had to because the sale of conventional systems has been adequate to achieve corporate revenue objectives.
 - Until the formation of GBG, they have not felt comfortable with marketing to small end users - a weakness intolerable to IBM management.
 - A vital ingredient in the overall IBM strategy is not yet available - communications.
 - Rapid pursuit of DDP would result in significant offloading of large central mainframes and be self-impacting.
- While most executives think they would like to have IBM's "problems", the shift to DDP requires both imagination and courage on the part of IBM corporate management. While IBM may appear to "win them all", the last major technological strategy shift was the announcement of System/360, and that was not as smooth as it appeared to the outside world.

- x The IBM corporate perspective is important in understanding how their DDP strategy is being implemented.
- DPD continues to play its role of servicing large scale customers and providing them with an overall framework (SNA) to proceed towards DDP. This containment strategy is working and the backlog of 3033s represents more raw computer power than IBM currently has installed.
- The General Business Group (GBG) has been formed bringing together the General Systems Division (GSD) and the Office Products Division (OPD) under common management.
- OPD is the fastest growing division in IBM, but its conventional product lines are potentially subject to impact as office automation occurs. However, it does have experience selling to end users in an office environment and GSD needs this type of marketing orientation. Since OPD needs an infusion of GSD technology, it should be a happy marriage as data processing and work processing merge.
- The current conflict between DPD and GSD products was noted earlier. IBM corporate reaction is that this represents "healthy competition". Some confusion in the marketplace doesn't bother IBM as they pursue DDP from both extremes.
- The missing ingredient of communications services (and products) was anticipated by IBM when they invested in Satellite Business Systems (SBS) - ostensibly because common carriers were not meeting the data communications requirements of IBM customers. When SBS services become available in the early 1980's, data transmission requirements will be satisfied for large IBM customers. IBM will then have enormous new markets available for graphic transmission, teleconferencing, electronic mail and integrated data and voice communications systems.

- It is apparent that IBM is pursuing an interim corporate strategy which not only controls the growth of DDP (including communications) but allows the time to prepare its entire organisation for major new business opportunities in the 1980's. In order to achieve its growth objectives, IBM must embrace DDP on the broadest possible basis. It is currently in the process of methodically implementing a plan to accomplish this.

- This interim period is now almost over. With its current products IBM can provision DDP systems well into the 1980s.
- By the time it becomes obvious that "data processing" is a cheap commodity available to all, IBM will be prepared to become the world's largest supplier of information systems (including communication services and products). During the 1980's these services will be generally distributed into individual residences and IBM (or its successors) will provide products and services in the consumer market. At this point, DDP will be fully defined - long after the term has any significance or is of any interest.

MIGRATION PATHS AVAILABLE FOR DDP USERS

- The 8100 systems fit into DDP's spectrum of products without overlapping at the top-end with 4300 Processors.
- The smaller model - 8130 - can be run under the DPCX operating system as a 3790 emulator, and thus provides a migration route for 3790 users.
- The larger processor - 8140 - provides fuller DDP capabilities running under the DPPX operating system. There are therefore migration possibilities within the range, from 8130 to 8140, and within the 8140 itself. These possibilities are necessarily restricted because the concept of DDP precludes the build-up of a large installation.

PRICING AND SUPPORT

- Exhibit IV-8 indicates, in similar fashion to the analyses on 4300 Processors, how migration within the range affects the relative pricing of hardware and software:
 - hardware is still the major component
 - maintenance is considerably higher (at between 18% and 21%)
 - software licence charges drop in percentage terms from 8% to 4%, even when taking into account the extra LPs required at the mainframe host to support the 8100.
- The first two systems shown in Exhibit IV-8 are broken down in greater cost detail in Appendix C. The costs given there are, however, US dollar prices, which are normally lower than the prices charged in any West European country.
- No software support charges are incurred with 8100, because the system is not subject to the revised support scheme.
- IBM have indicated a wish to support the 8100s on a less remote basis than 4300s. An organisation called the Branch Customer Centre is being set up at each Branch. Its functions will be:
 - to introduce 8100 to its potential market
 - to troubleshoot for customers who have particular problems.

This latter involves the use of a 'trouble clinic' to which users can bring their problems on a day-to-day basis.

- 8100s have the same component technology as 4300s (and System/38). IBM sees them as having a reasonable life-time in the product catalogue.

TYPICAL 8100 CONFIGURATION COSTS

HARDWARE AND SOFTWARE AS PERCENTAGES OF TOTAL MONTHLY OUTGOINGS

| OPERATING ENVIRONMENT | HARDWARE PURCHASE | MAINTCE. (MMM) | SOFTWARE LICENCE | SOFTWARE SUPPORT |
|--|-------------------|----------------|------------------|------------------|
| Small System - 8130 as a 3790 Replacement running under DPCX | 71 | 21 | 8 | NA |
| Medium-sized System - 8140 under DPPX | 75 | 21 | 5 * | NA |
| Full DDP System - 8140 under DPPX | 78 | 18 | 4 * | NA |

* An allowance has been included for extra support software required at the host processor

EXHIBIT IV-8

C. ON 370 MODEL 158

- Though the 158 can still be bought as a uniprocessor configuration, its main role at present is to be installed as an attached processor for upgrading existing single processor configurations. This is an intermediate role designed to safeguard the loyalty of the 158 customers, at a time when there is uncertainty about where they have an upgrade path.
- Possible upgrade policies for 158 users are:
 - move from uni- to attached processor configuration,
 - move up to model 168,
 - move to the appropriate 303X processor for their requirement,
 - wait for MAYA 2 or one of the low-end 'H' series machines to be announced.
- IBM has three generations of equipment competing, or about to compete, in this slot in the range:
 - 370, obsolescent
 - 303X, current
 - 'H' series, on the way.

There is, hardly surprisingly, some confusion here, and it has resulted in the U.S. in a revival of the fortunes of second-hand 158s and 168s. This is a temporary phenomenon.

- The cost penalties of installing a 158 as against a 3031, of approximately similar power, are great, as much as 33% on a purchase plan over 40 months. This is illustrated in Exhibit IV-9, which shows the comparative costing.
- Interesting highlights to note are:
 - in going to 3031, maintenance has increased its share of costs and risen in absolute value,

COMPARISON OF PRICING OF 370/158 AND 3031

| MODEL | PRICES IN \$000s AND AS PERCENTAGES OF TOTAL MONTHLY PURCHASE OUTGOINGS | | | | | |
|---------|--|--------|-------|------|------------------|------------------|
| | PURCHASE (40 MTHS.) | RENTAL | LEASE | MMMC | SOFTWARE LICENCE | TOTAL MONTHLY |
| 370/158 | 72.8 | 91.0 | 82.0 | 6.52 | 2.5 | 81.8 |
| | 89% | | | 8% | 3% | 100% |
| 3031 | 49.0 | 63.6 | 57.2 | 7.3 | 2.5 | 58.8 |
| | 83% | | | 12% | 4% | 100% |

EXHIBIT IV-9

software costs are the same for the two systems and software is thus a higher percentage of total cost in the case of the 3031.

- MVS is the main operating system for 158 and above, but some older systems are using OS/VS1, MFT and MVT.
- MVS is now a Class II SCP, and does not come under the revised support scheme.
- No migration to 158s is now likely to take place, since the announcement of 4300s - with more to come.
- The model 158 is little affected by DPD's support policy change.

V. SUPPORT IN GS DIVISION

V SUPPORT IN GS DIVISION

- The General Systems Division of IBM (GSD) has been operating a less complex software support policy than DPD. Reasons for this are twofold:-
 - GSD operates in a simpler sector of the market,
 - GSD does not have the enormous load of past software to support.
- For this reason GSD forms an easier model for Philips to study. Besides which it more accurately matches the requirements of Philips' own market sectors.
- During recent months, GSD has made product announcements, a number of which have been important:
 - System/38 - launched 3rd quarter '78,
 - Series/1 - handed over to the field sales force as from 1/1/79
 - 3370 Disks - first announced as part of 4300 launch, also to be made available on S/38,
 - 5260 Retail System - announced on 9/1/79,
 - Key entry/unit record equipment marketing and servicing responsibility taken over as from 1/5/79.
- During the same period, GSD has started to open a chain of 'computing stores' throughout Europe. These stores, or Business Computing Centres, as IBM styles them, are at present confined to selling the 5110 desk-top computer, the cheapest computer product in GSD's range.
- The most important announcement has undoubtedly been the System/38, because it allows GSD to offer its customers a growth path without handing them over to DPD.

A. SOFTWARE SUPPORT POLICY

- GSD has continued with the same support policy as before and has not copied any of the recent changes introduced in DPD:
 - in particular, there has been no attempt to formalise the charging of software maintenance.
- GSD operates an unbundled software policy, though some elements of support remain bundled:
 - software products are normally chargeable as licensed products (LPs), whether in the system software or the application software area,
 - some earlier operating system products are not charged,
 - pre-sales application support is provided as part of the marketing function,
 - post-sales hand-holding is provided free up to an agreed level, which may vary according to product from zero up to a few days.
- Except for the absence of the national telephone support centres, the servicing of software products is carried out in a similar way as in DPD, but the Programming Service Classifications A, B and C do not apply. Instead the service is built around three concepts:
 - Central Service
 - Local Service
 - Local Assistance.

Products are classified by being designated for one or more of these service levels.

- Central Service implies the provision of a central maintenance function to debug, correct and update software products already issued. Preparation of faults reports can still be the responsibility of the user, but a product on Central Service is a current product and IBM take responsibility for fault corrections.
- Local Service means that the product will be supported by Branch SE or Software CE staff in the following ways:
 - implementing temporary fixes,
 - submitting fault documentation to the Central Service function.
- Local Assistance performs the same functions as Local Service, but all IBM activity is at the request of the user after he has attempted his own problem diagnosis. The response to a call for Local Assistance is subject to availability of staff.
- GSD has always been stricter on release currency than DPD. They have been able to enforce this point because fewer issues of products are being made from what is a smaller library.
- Warranty of Licensed Products is an optional item. Unless it is specified for a particular product, it will not be given.
- GSD reserve the right to charge for any of the support activities which are not specifically stated to be free of charge.
- The organisation structure which has responsibility for these servicing functions is similar to that of DPD. Exhibit V-1 illustrates the structure as it is for a single European country.
- The important point to note is that a distinction similar to that in DPD is made between SEs and software CEs. In other words, the provision of application and marketing support is completely separate from that of

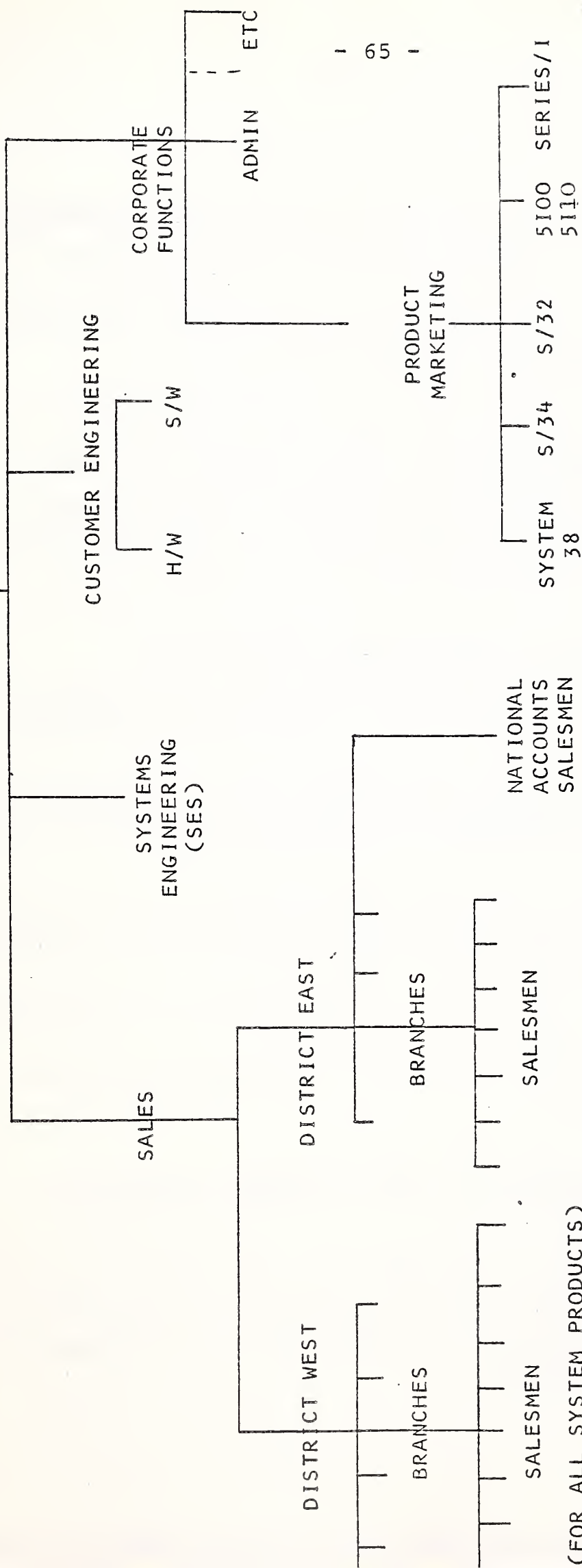
servicing software products, which again is distinct from the hardware maintenance function (hardware CEs). However, in GSD a customer is more likely to have a product serviced by an SE than would be the case in DPD. The reasons for this are:

- there are more IBM-developed application packages in use, system software being a smaller component of the GSD program library,
- local service and local assistance to application products may be more economically provided in individual cases by an SE who knows the customer's environment and who can refer back to CEs or Central Service for resolution of really knotty problems.

B. DIFFERENCES ACROSS THE PRODUCT RANGE

- GSD's current computer range includes:
 - System/30 series,
 - Series/1,
 - 5110 and the older 5100 desk-top machines.
- Besides these products, there is the installed base of System/3 users on Models 8, 10, 12 and 15. These systems were installed over a number of years spanning the introduction of software unbundling. Some control programs are therefore still provided free of licensed charge but these are the exception.
- System/30 machines include:
 - System/32, the first of IBM's small business machines,
 - System/34, brought out in response to the small-end users' requests for multi-terminal working,
 - System/38, launched last year and offering the same type of facilities as the /34 but with very much greater capability; indeed, enough to take it into contention with the bottom-end of DPD's mainframes.

DIRECTOR
GSD



GSD STRUCTURE

EXHIBIT V-1

- System/32 has now been obsoleted by the /34 and its prices have consequently been reduced to 'clearance sale' levels by recent cuts of around 30%.
- System/34 is the mainstream small-business product, while deliveries of S/38 have still to get properly going in Europe.
- IBM is itself spending a lot of time currently on familiarisation of its own staff with the capabilities of S/38. Support will require a well-trained set of SEs, as the potential prospects for the machine will demand good back-up from GSD before they put their name to the order. This is the usual pattern when IBM brings out a new product:
 - Sales and sales support staff get earliest training,
 - Customer Engineering staff will to an extent lag behind them because their training inevitably requires to be completed by experience.
- The Desk-top computers do not require the same degree of support as the small business computers. The software catalogue is of a very restricted nature.
- The retail terminal system (5260) requires specialist industry support via national accounts branch.
- Series/1 is different from the other products in being offered on a completely OEM basis:
 - without any bundled support pre-sales,
 - but with a fairly extensive licensed software catalogue.

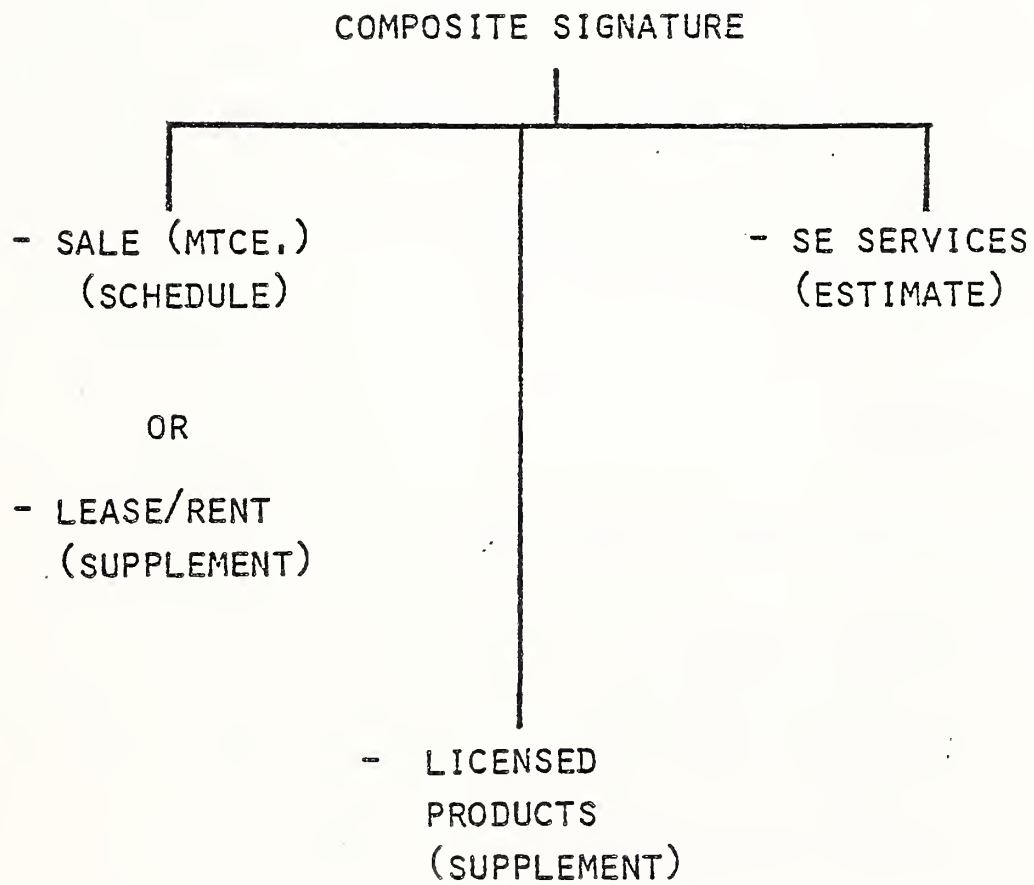
To avoid difficult commitments when selling directly to end-users, GSD is limiting the number of operating systems which will be offered to one (EDX). Other operating systems (e.g. RPS) require third-party implementation support from a systems house.

C. SOFTWARE TARIFFS

- Software is normally licensed on a monthly charge basis, but there are options available:
 - to make a once-off payment or one-time charge (OTC),
 - to bank 50% of licensed monthly payments towards paying for the licence in a lump sum at any time during its duration (not more than 50% of the OTC may be banked; thus the optimum time for availing oneself of this option is to go "paid-up" as soon as 50% of the OTC has been paid in monthly fees),
 - to have further charges waived after so many consecutive monthly payments have been made.
- Initial and/or Process charges (see Glossary) may be raised in addition on certain product types; usually this is done on the less-used classes of product.
- There are a number of different program types which can be licensed, and the options that apply to each vary but in a consistent fashion.
- Program products may be classified as:
 - CP or Control Programs
 - LP or Licensed Programs
 - a now little used term for operating systems,
 - the great bulk of standard system software modules, language compilers, utilities, and some application packages,

- PRPQ or Program RPQs - usually a special or customised system software product,
 - CGP or Country Generated Program - an application product whose applicability is limited by national boundaries,
 - FDPs and IUPs - rarer types of product which usually stem from a single installation's development project.
- The CP classification when used is reserved for a non-chargeable product.
 - LPs may be charged:
 - on a One-Time Charge, or
 - by monthly Licence Charge with the 50% credit scheme,
 - by monthly Licence with charges being waived after 24 or 48 consecutive payments, in certain instances.
 - PRPQs are charged for:
 - by OTC, or
 - by Licence Charge with charges being waived similarly, but usually only after only 24 consecutive payments.
 - CGPs are charged for:
 - by monthly Licence Charge with an Initial Payment, with payment waivers after as little as 12 months.

GSD CONTRACT STRUCTURE



- FDPs may be licensed:
 - by OTC,
 - by Licence Charge with waivers after 24 or 12 months.
- IUPs are charged for in the same way as FDPs but with the emphasis being placed on getting paid-up.
- The tendency is for products to be licensed on a continuous monthly basis if they are standard IBM products on full Central Service maintenance. As we proceed through the spectrum of product types to those that are least standard, the desire is to get a once-off payment for providing the product and to forget about ongoing support. Process charges are normally only raised on non-standard products where the mechanism for generating the necessary documentation may cause IBM unwarrantable expense and some discouragement factor is required to control this.

D. CONTRACTS

- GSD uses five standard contract types:
 - Hardware purchase,
 - Hardware maintenance,
 - Hardware Lease/Rental,
 - Software Licensed Products,
 - Systems Engineering Services.
- The contracts are linked in a two-tier structure to a Composite Signature Contract which saves the trouble of multiple signing of documents.
- The structure is illustrated in Exhibit V-2.
- Copies of the Contract documents are included in Appendix D.

VI. IMPACT ON SELECTED PRODUCTS OF GSD

VI. IMPACT ON SELECTED PRODUCTS OF GSD

A. ON SYSTEM/34 SMALL BUSINESS COMPUTER

- System/34 is a workstation - oriented business computer, offering facilities for a range of business sizes, from the smaller ones requiring single terminal batch-style operation up to a medium-size enterprise using a multi-programming environment. The maximum number of workstations which can be attached is:
 - 8 on direct (local) attachment, and
 - 64 over remote lines under SNA.
- The S/34 therefore takes over from the S/32 which was typically a batch environment system with optional remote batch communications facilities.
- IBM has been slow to advocate the on-line work-station approach to small business machines, and it has been some time in getting S/34 orders going after the announcement in 1976. This reflects the traditionally conservative IBM approach to on-line working, an approach which has been inherited from its long involvement with complex mainframe systems over a period when operating software did not have the robustness and resilience against data and program corruption which is current today.
- This tardiness on IBM's part has allowed the competition to establish itself in the form of:
 - the European small business machine vendors,
 - the mainly US-owned minicomputer vendors.
- Philips has pursued a similarly cautious approach in its launches of:
 - the P350 VRCs, as simple single-station systems,

- the P400 Series, whose entry to the market was delayed until the multi-terminal requirement was fully established.

MIGRATION PATHS

- There are two principal routes into the S/34.
 - as an upgrade from an S/32,
 - as a first-time user.
- Migration beyond the /34 would naturally be to the S/38.
- Staying within the S/34 itself, the user can grow from a typical four-station entry-level configuration up to the full complement of 72 terminals, but this is likely to give poor responses once terminal numbers have risen above 24. It is at this point that one would expect IBM to be talking in terms of the larger machine (the S/38).
- Price ranges for the three System/3X machines are given in Exhibit VI-1. Percentage changes in contributions to revenue from upgrading within System/34 are not expected to be significant. However, in moving up the range the percentage of the maintenance component is calculated as decreasing.
- System/32 prices have taken into account the recent cuts of around 30%.

SOFTWARE PRODUCTS

- IBM's policy towards application software for small business systems has been based on a mixture of:
 - standard programming languages,
 - generalised application packages.

SYSTEM/3X CONFIGURATION PRICE RANGE - DOLLARS

| PROCESSOR | HARDWARE PURCHASE | HARDWARE MAINTCE. PER MONTH | SOFTWARE LICENCE PER MONTH | TOTAL MONTHLY OUTGOINGS |
|-------------|----------------------|-----------------------------------|----------------------------------|-------------------------------|
| S/32 - from | 29,000 | 242 | 125 | 1,092 |
| - to | 45,000 | 375 | 400 | 1,900 |
| S/34 - from | 55,000 | 275 | 180 | 1,830 |
| - to | 200,000 | 1,000 | 600 | 6,600 |
| S/38 - from | 143,000 | 572 | 300 | 4,447 |
| - to | 500,000 | 2,000 | 1,800 | 16,300 |

EXHIBIT VI-1

- RPG II has been the company's favourite language in this sector, with COBOL being second string. System/34 offers:
 - RPG II
 - FORTRAN IV
 - COBOL
 - basic assembler.
- Applications packages have been provided for standard accounting and commercial DP applications. In the European environment portability of programs across national boundaries is limited. IBM's latest UK sales accounting package (DMAS II) is a CGP (Country Generated Program). Its product brief is included in Appendix G.
- Besides summarising the package's facilities, the brief also specifies its:
 - Programming Service Classification
 - Test Period
 - Charging Procedure
 - other Licensing information.
- Another more generally applicable product is the latest manufacturing package for S/34, MAAPICS (see Appendix G. for product brief).
- IBM has traditionally been strong in the manufacturing sector, and this is in line with the fact that manufacturing industry is the single largest user of computing in most European countries.

B. ON SERIES/1 MINI-COMPUTER

- The Series/1 is sold now on both an end-user and an OEM discounted basis, though in the latter case the discounts are not high enough to encourage any but the large volume sales channels, such as some of the West German systems houses surveyed by INPUT last year.

- Discount structure was introduced recently as follows.

| | | | | | |
|---|-----|---|-------------|---|-----|
| - | 0 | - | 49 systems | - | 0 |
| - | 50 | - | 99 systems | - | 5% |
| - | 100 | - | 149 systems | - | 10% |
| - | | - | thereafter | - | 15% |

- Discount applies to peripherals and licensed programs as well as to processors, and is calculated on orders installed in an 18-month period.

REVENUE ANALYSIS OF TYPICAL CONFIGURATIONS

- For an analysis of the revenue produced by the Series/1, it is necessary to examine the product from the users viewpoint. A good basis for this is through the series of IBM "typical" configurations, comparing the revenue produced by each major charge category over a five year period (this eliminates the distortion introduced by one-time charges etc).
- There is clearly no doubt about the application, by IBM to the Series/1, of a strategy of low cost, basic configuration sales, followed by a strong push for feature/peripheral sales. Once the account is captured there is a low risk of his changing suppliers, and a high possibility of application-led growth of each configuration. Hence the emphasis is put on revenue growth from peripherals.
- In Exhibit VI-2, although systems and applications costs are a low percentage of the revenue, it must be remembered that single application charges only have been included. It is not possible to cater for a wide variety of application mixes that can be found on each configuration at actual user sites. It is highly probable that the share of revenue produced by systems/applications software will be up to double the 9% indicated. This is particularly true since the application and system software is sold on a "single licence" basis.
- IBM "typical" configurations for applications are normally at the extreme low end of practicality - growth is expected.

- Processors and main memory (traditional high revenue sources for IBM) will make substantially less contribution to revenue on Series/1 than IBM has expected in the past, IBM is very aware of this.
- Maintenance (an IBM strength with end users) is exposed as a primary revenue source. In addition, the percentages are calculated based on the minimum monthly maintenance charges. Maintenance has always been a high profit service for IBM and technology will make it even more so.
- Features and peripherals were restricted in terms of both availability and capacity at the time these configurations were developed but are obviously the primary Series/1 revenue source.
- Software showed definite revenue weakness in IBM's "typical" configurations, primarily because it was not available. For example, no software was proposed for the communication concentrator, and only the Base Program Preparation Facilities were included in the stand-alone business configurations.
- Compilers were not deemed to be necessary in any of the six environments and are not included in the costs (an indication of the "minimum" configuration approach).
- Where software was available (Facility Control/Power Management) the programming contribution to revenue jumped to 20%.
- It is understood that IBM's objective is to grow the "typical" configuration in terms of revenue. Announced enhancements give some indication of how these configurations are expected to expand.

MIGRATION

- Migration paths to Series/1 are severely limited. It is normally purchased:
 - as an additional processor for communications, RJE or DDP,
 - as a initial system for a first-time user.

EXHIBIT VI-2

REVENUE BREAKDOWN OF "TYPICAL" SERIES/I CONFIGURATIONS

| <u>Application</u> | <u>Percent of Revenue (5 years)</u> | | | |
|--------------------------------|--------------------------------------|--------------------------------------|--|-------------|
| | <u>Processor and Main Memory</u> | <u>Features and Peripherals*</u> | <u>System/Applications Programming</u> | <u>MMMC</u> |
| Small Energy Conservation | 16% | 24% | 29% | 31% |
| Standalone Business (Small) | 12% | 43% | 13% | 32% |
| Multifunction Work Station | 16% | 40% | 8% | 36% |
| Intelligent Terminal | 20% | 38% | 3% | 39% |
| Communications Concentrator | 20% | 39% | - | 41% |
| Process Control** | 19% | 42% | 3% | 36% |
| Average | 17% | 38% | 9% | 36% |

* Including Terminals

** Excluding RPQ's

- Migration away from Series/1 is likely to be difficult for reasons of compatibility.
- Series/1 has an increasing library of software products. These are now such as to provide reasonable growth possibilities without changing to another machine. Recent additions to the software catalogue include:
 - COBOL, MTM and sort/merge under EDX,
 - DTPM, a storage management module, for use under the new version of RPS - Version 4B,
 - communications support for SNA.
- The power and flexibility of Series/1 make it a serious rival to 8100 on its technical merits as a DDP processor. However, S/1 is not supported with any amount of bundled support. It is completely unsupported to the end-user. SE services are incurred at a fee even if a user requires his initial software on diskette to be reloaded because of some transient error. It is thus very much a tool for implementation only with aid from the systems and software house industry, unless the end-user is mature and has in-house software capability.

D. ON THE 5110 DESK-TOP COMPUTER

- The 5110 is the new 'baby' of the GSD family of products. It supercedes the earlier 5100 which was IBM's first desk-top machine.
- The concept of the desk-top computer is an attempt to capitalise on two simultaneous industry trends:
 - the falling price of calculators has not so far impacted on the top-end of the range, the fully programmable calculator offering BASIC as an application language,

- the microcomputer-based hobbyist and personal computing sector where configurations are being dressed up and sold without adequate service as systems for the small businessman.
- The 5110, after recent price cuts, is now sold just above the threshold price for these personal computing/Very Small Business Systems (VSBS). This threshold lies at \$10,000.
- 5110 is a single-station computer to which may be added a limited complement of peripherals:
 - disks
 - diskette
 - printer
 - optionally, other devices via separate I/O attachment units.
- It is sold for office computing use on both scientific and business applications, but has a restricted software library, consisting of:
 - An SCP called 5110 SCP,
 - BASIC and APL high-level languages,
 - Utilities for sorting and business applications.
- Bundled support is limited since it is planned to be sold mainly through the new computer stores i.e. as an off-the-shelf product, but with induction courses and demonstrations provided on IBM premises.
- Migration is not really an issue for 5110 as it is intended for a market with a limited capability requirement.
- The US price list for the equipment is included in Appendix C.

VII. SUPPORT IN OP DIVISION

VII. SUPPORT IN OP DIVISION

- Office Products Division of IBM (OPD) was also examined as part of the study to determine whether there existed in its business practices any factors relevant to Philips present strategy formulation, which needed to be brought out.

A. THE PRODUCT RANGE

- OPD is responsible for selling IBM's products of the following types:
 - Typewriters
 - Dictation equipment
 - Copiers
 - Text processing equipment
- The Office System 6 (OS6) is IBM's major product in the Text Processing Sector. As such it is bringing automation into the area previously covered by the typewriter and is sold to office management who have no specific training (or need for it) in DP techniques.

B. OFFICE SYSTEM 6

- The product is offered as a comprehensive range of models:
 - Office System 6/420, 6/430, 6/442, 6/452, 6/440, 6/450.
- In addition, certain of the peripheral units are sold as free-standing systems - for input/output off-line:
 - magnetic card typewriters of various types,
 - the 6640 ink-jet printers.

- As magnetic card is an obsolescent medium for this market area, IBM offers diskette as the alternative, or in combination with magnetic card in mixed media configurations.
- Both the OS6 configurations and the free-standing peripheral units can be provided with communications capabilities. These can link to:
 - DPD systems, such as S/370,
 - GSD systems, such as System/32 and /34.

Since OPD is twinned with GSD in the General Business Group (GBG), more communication links to System/3X series are found in the field.

- OS6 can be used for the following applications:
 - text processing, such as preparation and editing of correspondence, reports, catalogues and brochures,
 - record processing, - sequencing, qualifying and reformatting lists or tables for inclusion in other documents,
 - distribution of information round and throughout an organisation,
 - merging computer-generated data with manually keyboarded text information for input to any of these functions.
- The system is modular in design. Installations can thereby be configured to suit a wide mix of applications.
- The equipment is not the most expensive of its type on the market, but it is widely regarded as a not inexpensive investment. For this reason, to date its sales have been limited (less than 2000 systems in Western Europe). Appendix C contains details of the UK prices (in £).

C. BUNDLED SUPPORT

- The Office System 6 is not a user-programmable unit, though it performs intelligent functions and is based on a programmed processor. For this reason software products are not available by user option; instead the required facilities are all pre-programmed in the equipment. The user's task is to follow preset operation sequences to call up the different functions.
- User staff operating the equipment are clerical, administrative and secretarial. Operation instructions and sequences are best supplied as an Operating Manual, in which staff handling the equipment will require training, as well as education in general concepts.
- IBM's approach to this requirement is to see it as an exercise in Systems Analysis and Documentation. The sales team is provided with a member called the Marketing Support Representative whose job it is to:
 - analyse current office procedures in the end-user department(s) obtaining the installation,
 - translate the requirements into a new set of office procedures, incorporating or interfacing to the remaining clerical work and clearly defining mechanised and manual tasks,
 - prepare a Procedures Manual with the detailed operator instruction sequences,
 - train user personnel in the use of the system from general IBM documentation and from the Procedures Manual.
- This effort is included in the price of the system being installed, and is the analogue of the application support required to get DP users' applications operational. In DP terms, then, for the OS6 system:
 - pre-sales application support is provided in 'bundled' form,
 - software product servicing is not a requirement.

- In fact, IBM are also willing to supply post-sales installation evaluation studies as part of the ongoing marketing support package by the sales team. This is provided on a strictly monitored basis to avoid wastage of staff time on once-off requirements.
- As the sophistication of the Office Products market increases, we can expect to see IBM 'unbundling' also in OPD, but this is at least two years away at the moment. The impetus will come via the interfaces to GSD product lines - at the time when OPD sales start to be impacted by increased amounts of pre-sales support,
 - as technology advances multiply the configuration and application possibilities.

D. CONTRACTS

- For the sake of completeness, OPD Contracts for Purchase of OS6 systems are given in Appendix D.
- There are no specific clauses in this agreement which impact on software support policy. On the other hand there are no clauses which imply a commitment to give any amount of 'bundled' support and IBM is, therefore, free to include support charges at any time in the future by introducing a separate contract.

VIII. COMPARISONS BETWEEN DIVISIONS

VIII. COMPARISONS BETWEEN DIVISIONS

- There are obviously marked differences between the software support product policies of IBM's three major marketing divisions. There is therefore no such thing as a single IBM policy for software support. Instead, we see the continuing evolution of these policies to suit the company's overall commercial posture, and the necessary delegation of software strategy formulation to individual divisions serving largely distinct market sectors.
- In this report we have in the main confined our research and analysis to software product support, rather than to the total spectrum of support activities including education, training, application support, bureau back-up services and the like.

A. APPROACH TO PRODUCT SUPPORT

- Data Processing Division has inherited both the backlog of products (hardware and software), and the bulk of the customer base, which has remained with IBM since it entered the field of manufacturing computer equipment in 1953. Since the late 1950s IBM has been the market leader with over 50% of the world-wide installed base by value. This is a large inheritance, providing stability as well as inertia to the organisation.
- DPD's current policy can be summarised as:
 - moving towards totally unbundled system software products, unbundled application software products and unbundled systems engineering services,
 - continuing to provide central maintenance facilities for all these products free of charge,

- starting to charge for local product support on user sites, as distinct from central support provided in the new national centres, which remains free of charge,
 - encouraging users effectively to contract their system generation tasks back to IBM, by taking a packaged System IPO/E directly from the factory with their hardware.
- By contrast, GSD's policy is at once more old-fashioned and more straightforward:
 - by and large, however, its products are equally unbundled.

The differences lies in two areas:

- product support activities are not distinguished by source, central vs. local; the one free, the other charged,
 - the concept of the system software package, being the sum of a number of optional elements, i.e. the System IPO or IPO/E, has not needed to be introduced.
- GSD's posture is the classic one of the unbundled small business machine vendor:
 - "we provide the equipment and the software tools; with these the user gets his systems built and for this purpose he may approach a variety of sources".
 - The underlying reason for this posture is the need to optimise the use of marketing resources in a fiercely competitive market place. There is a recognition that support impacts on other activities.

- OPD is in a different market, rather than a different sector of the same market, as the other two; but this market is steadily merging with that for computer equipment. Along with communications equipment, these are now seen to form three components of the future information-handling equipment market.
- Where OPD offers support it is bundled, but it is not support, in the narrow sense of product support, to which we have restricted this report.

B. TARIFFS

- Though we have not been able to provide full price lists of the software associated with all of the hardware models examined, we have analysed in sufficient depth to show and to quantify the trend towards an increase in IBM revenues from software.
- IN DPD, software has changed from providing less than 10% of installation costs (typically 6% to 8%), to providing around 15% on the latest announced range, the 4300. Of course, this trend will take time to become established across the total spectrum of DPD products. INPUT estimates a time-lag of two years for this to happen.
- GSD has not taken any other steps to gain more revenue from software, but as its installed base rises it will face the same servicing problems as DPD. By this time, INPUT expects to see similar postures and attitudes to support being adopted in GSD and in an Intermediate Systems Division, (handling the mid-range mainframe products of the present DPD).
- OPD software tariffs do not exist.

C. CONTRACTS

- Our findings from examination of contracts for Program Products and Licensed Programs is that they are important in defining IBM's fall-back position in the licensing of programs. It is important to remember that IBM retains the rights in all their software products, but that they cannot restrict their use if the contract terms are met.
- DPD and GSD contracts for software differ chiefly in:
 - the definitions of the Programming Services provided,
 - the complexity of their structures; GSD being simple, DPD having had to extend its contracts with Supplements and Amendments to keep pace with the increasing sophistication of its policies.
- It is interesting to note that OPD is not formally committed to the bundled application support it is now giving.

D. DRIVING FORCES

- Two driving forces can be isolated from behind the welter of detail of IBM policy:
 - the imbalance between the company's expansion plans and the supply of good trained support staff,
 - the need to grow the mid-range mainframe customer base, as the corner-stone of IBM's total policy for the 1980s and beyond, and the logistical requirement for productivity to achieve its aims.

IX. APPENDICES

APPENDIX A: USER QUESTIONNAIRE

CATALOG NO.

| | | | | | | | |
|---|---|---|---|--|--|--|--|
| Y | S | P | S | | | | |
|---|---|---|---|--|--|--|--|

I B M SOFTWARE SUPPORT
QUESTIONNAIRE

BASIC

What types of IBM (or plug-compatible) equipment for data or word processing does your organisation currently have installed ?

| Model Nos. | Qty. | Size of Main Store | Peripherals e.g. DASDS, Mag.Tape Qty. Model | No. of Terminals |
|------------|------|--------------------|--|------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Do you ☐ own, ☐ lease or ☐ rent the equipment ? (Please tick one or more boxes)

What IBM Operating Systems (SCPs) do you use ?

a. | b. |

Give Release Nos. if possible. (Use boxes a. up to d.)

c. | d. |

Please list your major (up to 8) IBM software products in current use :

| | Product Name | Rel. No. | Category | O or L | | Product Name | Rel. No. | Category | O or L |
|----|--------------|----------|----------|--------|----|--------------|----------|----------|--------|
| a. | | | | | b. | | | | |
| c. | | | | | d. | | | | |
| e. | | | | | f. | | | | |
| g. | | | | | h. | | | | |

(Category: LP = Licensed Product; FDP = Field Developed Program; IUP = Installed User Program
O or L: O = One-Time Charge; L = Licensed Charge)

What other IBM services do you use ?

☐ SE Support

☐ Training

☐ Data Centre

(Please tick boxes)

☐ Other (specify) _____

What are the PAST effects on your organisation of IBM's progressive unbundling

ANTICIPATED FUTURE effects _____

Q7 Please rank IBM's competence in software support to your installations(s) for the following product areas (1 = excellent, 5 = poor): Op. Systems Database
Data comms./TP Other Utilities Application systems Other

Q8 Please rank the following factors in importance in your choice of IBM as a supplier: (1 = most important, 7 = least; use = sign if 2 or more have equal rank)

| | | | | | |
|------------------------|--|----------------------|--|---------------------|--|
| Hardware capability | | Hardware reliability | | Software capability | |
| Delivery dates | | Quality of servicing | | Application support | |
| Other (please specify) | | | | | |

UPGRADING - First-time users need only give installation date in Q9 and go to Q11.

Q9 When did you last upgrade from your previous model to your present configuration?197

Q10 What approximate %age change (\pm) in costs was involved in the upgrade for:
Hardware %... Software %?

Q11 When do you plan your next upgrade?

Within the next: 1 year, 2 years, 3 years, >3 years?

Q12 Do you plan:- a larger central installation with your existing model?.....

(Tick all appropriate boxes) - replacing your machine from IBM's later models (or PCMs)
- additional configurations of IBM (or PCM) equipment
- other (specify e.g. DDP, competition) _____

Q13 What IBM (or PCM) models are being considered? a. _____
b. _____ c. _____ d. _____

Q14 What are the software implications of your planned upgrade ? _____

Q15 What extra IBM software products do you plan to take in the next 12 months?

a. _____ b. _____ c. _____ d. _____ e. _____

What is your policy with respect to new releases of IBM software? _____

What % increase in IBM software/support costs do you anticipate over :
the next 12 months %; at your next major upgrade %?

What %ages of your total annual d.p. costs do you estimate IBM software/support services to be: - now.....-License charges % - software maintenance %
- after 1/1/80 % and support %

CONTRACTS

Do you have standard contracts with IBM for: (Please tick appropriate boxes)

| | | | |
|------------------------|-----------------------------------|---------------------------------------|-------------------------------|
| - Hardware | Standard <input type="checkbox"/> | Non-standard <input type="checkbox"/> | None <input type="checkbox"/> |
| - Hardware maintenance | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Software | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Support services? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Are IBM contracts flexible enough for your purposes? ☐ Yes ☐ No

Do you regard the standard contracts as onerous, inconvenient or merely a formality? (Please rank from 1 to 5: 1 = merely a formality,
5 = onerous)

How do your contracts match the products/services actually required for:
- H/W ; H/W maintenance ; S/W ; support services ?
(Please rank from 0 to 5: 0 = don't have one, 5 = perfect match)

What changes would you like to see in IBM's terms and practices? _____

ORGANISATION

What main contact points do you currently have with IBM?

| | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Salesman | S/W support (SE) | H/W engineer (CE) | Other(specify) |

Q25 How often per month on average do you access your IBM contacts by phone ?
(Please write the number of times)

Salesman

S/W support (SE)

H/W engineer (CE)

Other

Q26 In the event of a problem, how detailed is your pre-contact diagnosis of the fault? (Rank from 0 to 5: 0 = none; 5 = detailed)

Q27 What %age of problems do you estimate are fixed without an on-site visit from IBM staff? - Hardware % ?

- Software % ?

Q28 Any other information you believe to be relevant? _____

Thank you for completing the questionnaire. It is our intention to conduct regular samplings of computer users' views from both large and small organisations. Would you be willing to be included in future samples from time to time ?

| | |
|-----|----|
| Yes | No |
|-----|----|

Would you like further details of INPUTS activities ?

| | |
|-----|----|
| Yes | No |
|-----|----|

Please return this questionnaire
by 11th May 1979 to :-

M.A.P. Longy
INPUT EUROPE B.V.
Empire House
414 Chiswick High Road
London W4 5TF

Please write below any comments you might have on the suitability of the content or format of this questionnaire:

APPENDIX B: LIST OF TYPES OF USER
ORGANISATIONS

LIST OF TYPES OF USER ORGANISATION

- A small private sector short and long haul airline
- National EDP Centre for a major European multi-national
- Two Car Importers
- Three Banks - two foreign, one a merchant bank
- Headquarters of a transportation network
- International shipping agency
- Two Computer Service companies - one small, one large
- A firm of Solicitors
- Two manufacturing companies

APPENDIX C: PRICE LISTS

C1: 8100 SYSTEM PRICES

SMALL 8100 SYSTEM PRICES

| MOD/FEA | DESCRIPTION | QTY | MRC | MLC ⁽²⁾ | PURCHASE | MMMC |
|---------|---|-----|---------------------------|---------------------------|---------------|-----------|
| 8130A24 | CPU,256K,58MB Disk,1MB Diskette,Console | 1 | \$776 ⁽¹⁾ | \$660 ⁽¹⁾ | \$26,160 | \$138 |
| 1602 | SDLC Feature Without Clock | 2 | 70 | 60 | 1,680 | 15 |
| 4830 | Loop Adapter | 1 | 20 | 17 | 605 | 4 |
| 3701 | RS-232C Interface | 1 | 12 | 10 | 400 | 4 |
| 1710 | 128KB | 1 | 82 | 70 | 2,250 | 8 |
| 8775-1 | Display (2560 Char) | 6 | 444 ⁽¹⁾ | 378 ⁽¹⁾ | 17,010 | 114 |
| 4621 | Keyboard | 6 | 78 | 66 | 2,970 | 15 |
| 4850 | Loop Adapter | 6 | 48 | 42 | 1,890 | 9 |
| 3287-12 | Printer (120 Cps) | 2 | 466 | 396 | 12,500 | 125 |
| 4110 | Friction Feed | 2 | 12 | 10 | 320 | 1 |
| 3289-3 | Line Printer (400 Lpm) | 1 | 556 | 473 | 13,250 | 179 |
| 8809-1B | MT Unit | 1 | <u>417</u> ⁽¹⁾ | <u>355</u> ⁽¹⁾ | <u>12,780</u> | <u>63</u> |
| | | | 2,981 | 2,537 | 91,815 | 675 |

¹Plan D machines along with features: nine hours maintenance coverage, five days per week included in monthly rental and lease charges.

²Monthly lease charge (two-year lease)

MEDIUM-SIZE 8100 SYSTEM PRICES

| MOD/FEA | DESCRIPTION | QTY | MRC | MLC ⁽³⁾ | PURCHASE | MMMC |
|---------|--|-----|------------------------|------------------------|------------|----------|
| 8140A54 | CPU, 513KB, 58MB Disk (131KB Fixed Head), 1MB Diskette | 1 | \$1,810 ⁽¹⁾ | \$1,540 ⁽¹⁾ | \$47,700 | \$249 |
| 8101A10 | Device Attach Capabil- ity | 1 | 201 ⁽¹⁾ | 171 ⁽¹⁾ | 6,500 | 17 |
| 1507 | Diskette Drive/Tape At- tack | 1 | 27 | 23 | 900 | 4 |
| 1602 | SDLC Feature Without Clock | 3 | 105 | 90 | 2,520 | 23 |
| 3701 | EIS RS-232-C Interface | 2 | 24 | 20 | 800 | 8 |
| 4521 | Magnetic Tape Attach | 1 | 59 | 50 | 1,800 | 9 |
| 4830 | Loop Adapter | 1 | 20 | 17 | 605 | 4 |
| 3289-3 | Line Printer (400 Lpm) | 1 | 556 | 473 | 13,250 | 179 |
| 8775-1 | Display (2560 Char) | 18 | 1,332 ⁽¹⁾ | 1,134 ⁽¹⁾ | 51,030 | 342 |
| 4621 | Keyboard | 18 | 234 | 198 | 8,910 | 45 |
| 4850 | Loop Adapter | 18 | 144 | 126 | 5,670 | 27 |
| 3287-12 | Printer (120 Cps) | 4 | 932 | 792 | 25,000 | 250 |
| 4110 | Friction Feed | 4 | 24 | 20 | 640 | 2 |
| 8809-1A | MT Unit | 1 | 341 ⁽¹⁾ | 290 ⁽³⁾ | 10,440 | 48 |
| 3842-1 | Loop-Control Unit | 1 | 215 | 215 ⁽²⁾ | 5,725 | 43 |
| 6101 | Point-to-Point | 1 | <u>9</u> | <u>9</u> | <u>212</u> | <u>2</u> |
| | | | 6,033 | 5,168 | 181,702 | 1,252 |

¹ Plan D machines.

² Five-year lease.

³ Two-year lease.

C2: SERIES/1 SOFTWARE U.S. PRICE LIST

IBM SERIES/I SOFTWARE CATALOGUE AND
MAJOR ENHANCEMENTS (4/77 - 1/79)

| <u>Program Type</u> | <u>Licensed Programs</u> | <u>Monthly Payment</u> | <u>One-Time Charge</u> |
|---------------------|--|------------------------|------------------------|
| 5719-PC1 | Realtime Programming System Version 1 | \$20.00 | \$1,200.00 |
| *5719-PC2 | Realtime Programming System Version 2 | 25.00 | 1,500.00 |
| *5719-PC3 | Realtime Programming System Version 3 | 32.00 | 1,900.00 |
| *5719-PC4 | Realtime Programming System Version 4 | 38.00 | 2,250.00 |
| 5719-AS1 | Program Preparation Subsystem Version 1 | 18.00 | 1,104.00 |
| *5719-AS2 | Program Preparation Subsystem Version 2 | 20.00 | 1,208.00 |
| *5719-AS3 | Program Preparation Subsystem Version 3 | 22.00 | 1,320.00 |
| 5719-PL1 | PL/I Compiler and Resident Library | 46.00 | 2,784.00 |
| 5719-PL3 | PL/I Transient Library | 5.00 | 288.00 |
| *5719-ED1 | Series/I Structured Programming Facility (SPF) | 210.00 | |
| *5719-CR1 | " " " " (370MVS/VTAM) | | |
| *5719-CR2 | " " " " (370MVS/TCAM) | | |
| 5719-FO1 | FORTTRAN IV Compiler and Object Support Library | 14.00 | 864.00 |
| *5719-FO3 | FORTTRAN IV Realtime Subroutine Library | 5.00 | 288.00 |
| *5719-FO4 | FORTTRAN IV Realtime Subroutine Library Version 2 | 6.00 | 336.00 |
| 5719-LM1 | Mathematical and Functional Subroutine Library Version 1 | 7.00 | 408.00 |
| *5719-LM2 | Mathematical and Functional Subroutine Library Version 2 | 8.00 | 480.00 |

| | | | |
|-----------|--|--------|----------|
| *5719-CA1 | Series/I-System 370 Channel Attach Program | 21.00 | 1,250.00 |
| *5719-CB1 | Series/I COBOL Compiler and Resident Library | 62.00 | 3,700.00 |
| *5719-CB2 | Series/I COBOL Transient Library | 5.00 | 300.00 |
| *5719-CS0 | Programmable communications Subsystem Preparation Facility | 8.00 | 500.00 |
| *5719-CS1 | Programmable Communications Subsystem Execution Support | 6.00 | 336.00 |
| *5719-CS2 | Programmable Communications Subsystem Extended Execution Support | 20.00 | 1,150.00 |
| *5719-SM1 | Series/I SORT/MERGE | 7.00 | 400.00 |
| 5719-PA1 | Base Program Preparation Facilities | 90.00 | 2,160.00 |
| *5718-UI1 | Facility Control/Power Management 1 | 130.00 | 6,240.00 |
| *5719-UI2 | Facility Control/power Management 2 | 188.00 | 9,024.00 |
| *5719-UI2 | Facility Control/Power Management 3 | 52.00 | 2,496.00 |

| <u>Program Number</u> | <u>Programming RPQs</u> | <u>Monthly Charge</u> | <u>Paid-Up Cost</u> |
|-----------------------|---|-----------------------|---------------------|
| *5799-TAA | Control Program Support | \$15.50 | \$372.00 |
| 5799-TAL | Control Program Support Extensions I | 1.50 | 36.00 |
| 5799-TAQ | Control Program Support Extensions II | 1.50 | 36.00 |
| *5799-TBQ | Control Program Support Extended Function | 3.00 | 72.00 |
| 5799-TAH | Indexed Access Method Control Program Support | 5.00 | 120.00 |
| *5799-TBD | Control Program Support Commercial Arithmetic | 2.00 | 48.00 |

| | | | |
|-----------|--|------|--------|
| 5799-TAF | Binary Synchronous Communication Control Program Support | 3.50 | 84.00 |
| 5799-TAE | 4979 Display Station Control Program Support | 1.50 | 36.00 |
| 5799-TAK | 4978 Display Station Control Program Support | 6.00 | 144.00 |
| *5799-TAW | Control Program Support Disk Table of Contents | 1.00 | 24.00 |
| *5799-TAT | Control Program Support Sort/Merge | 5.00 | 120.00 |
| *5799-TAY | Control Program Support Disk Spooling | 3.00 | 72.00 |
| *5799-TBA | Control Program Support Format/Print | 3.00 | 72.00 |
| *5799-TBC | Control Program Support Auto-Call Support | 5.00 | 120.00 |
| *5799-TBB | Control Program Support Operator Station/Debug Package | 8.00 | 192.00 |
| *5799-TBE | Control Program Support 4978/4979 Display Map | 4.00 | 96.00 |

| <u>Program Number</u> | <u>Realtime Programming System PRPQs</u> | <u>Monthly Charge</u> | <u>Paid-Up Cost</u> |
|-----------------------|--|-----------------------|---------------------|
| *5799-TBN | Series/I Indexed Access Method | \$ 6.00 | \$ 360.00 |
| *5799-TBP | Series/I Basic Sort | 2.00 | 120.00 |
| *5799-TBM | Series/I IBM 4978 Display Support | 3.00 | 174.00 |
| *5799-TBL | Series/I Disk Spooling | 3.00 | 150.00 |
| *5799-TBK | Series/I Remote Job Entry | 31.00 | 1,842.00 |

| <u>Program Number</u> | <u>Field-Developed Programs</u> | <u>Monthly Charge</u> | <u>Paid-Up Cost</u> |
|-----------------------|---|-----------------------|---------------------|
| *5798-NLG | Series/I Intelligent Terminal Subsystem | \$110.00 | \$1,320.00 |
| *5798-NND | Series/I Event Driven Executive Basic Supervisor and Emulator | 11.00 | 650.00 |

| | | | |
|-----------|--|--------|----------|
| *5798-NNC | Series/I Event Driven Executive Utilities | 8.50 | 500.00 |
| *5798-NNB | Series/I Event Driven Executive Macro Library | 24.00 | 1,425.00 |
| *5798-NNQ | System/370 Program Preparation Facilities for Series/I | 520.00 | 6,240.00 |
| *5798-NNR | Series/I Native Application Load Facility | 60.00 | 720.00 |
| *5798-NPY | Series/I Intelligent Data Entry System | 55.00 | 660.00 |
| *5798-NPZ | Series/I Remote Job Entry for Control Program support | 25.00 | 330.00 |
| *5798-NRP | EDX Program Preparation Facility | | |
| *5798-NRR | EDX Basic supervisor and emulator V.2 | | |
| *5798-NRQ | EDX Utilities V.2. | | |
| *5798-NRX | EDX Macrolibrary Host | | |

ENHANCEMENTS SINCE NOVEMBER 1978

| <u>Program Type</u> | <u>Licensed Programs</u> | <u>Monthly Payment</u> | <u>One-Time Charge</u> |
|---------------------|---|------------------------|------------------------|
| *57I9-PC4 | Realtime Programming System Vn.4 with -Command Language Facility | 32.50 | I,9I3.00 |
| -TAI | - 5250 Support | II.I0 | 659.00 |
| -TA4 | - 4969 Support | IO.55 | 620.00 |
| 57I9-AS4 | Program Preparation Subsystem Version 4 | I5.80 | 938.00 |
| *57I9-AMI | Index Access Method (IAM) for PLI and COBOL support | 9.45 | 548.00 |
| *57I9-FC2 | Event Driven Executive (EDX) for FORTRAN support | 8.90 | 526.00 |
| *57I9-IM3 | EDX MFSL | 5.00 | 294.00 |
| *57I9-XSI | EDX Basic Supervisor | IO.00 | 584.00 |
| *57I9-UT2 | EDX Utilities | 7.20 | 438.00 |
| *57I9-XX2 | EDX Program Preparation Subsystem | 9.45 | 548.00 |
| *57I9-IM5 | EDX Macro Library | I7.75 | I,060.00 |
| *5740-IM2 | EDX Macro Library Host | 48.70 | N/A |



C3: 5100 AND 5110 U.S. PRICE LIST - DOLLARS

5100 AND 5110 U.S. PRICE LIST - DOLLARS

| MACH MDL/ TYPE-FEAT | DESCRIPTION | PURCHASE PRICE | MONTHLY RENTAL | MONTHLY RASE LEASE TERM | U/L % | TERM CHG | MMMC | FIC | PUP M P W P L |
|------------------------|------------------------------|-------------------|-------------------|----------------------------|----------|-------------|-------|----------|---------------|
| 5026 3715 | DX ENCLOSURE ATTACHMENT | 908.00 | 42.00 | | | | | | 45 B 2 B B 2 |
| 4621 | INTERNAL AIR ISOLATION 3 | 1465.00 | 55.00 | | | | 5.50 | | 45 B 2 B B 2 |
| 4622 | INTERNAL AIR ISOLATION 6 | 1955.00 | 76.00 | | | | 15.50 | | 45 B 2 B B 2 |
| 5731 | POWER FAILURE DETECT | 1305.00 | 63.00 | | | | 32.50 | | 45 B 2 B B 2 |
| 7401 | STORAGE POWER ADDITION | 417.00 | 17.00 | | | | 1.00 | | 45 B 2 B B 2 |
| 5028 001 | OPERATOR STATION | 1940.00 | 179.00 | 152.00 | 24 | C | 1.50 | | 45 B 2 B B 2 |
| 5029 1110 | AI CUSTOM | 30.00 | PURCHASE ONLY | | | | 69.00 | | 50 C 2 B B 2 |
| 1113 | AI/MR FILTER | 28.00 | PURCHASE ONLY | | | | NC | | |
| 1114 | AI/MR RBT FILTER | 144.00 | PURCHASE ONLY | | | | NC | | |
| 1121 | AI/MS NON-POLARIZED FILTER | 71.00 | PURCHASE ONLY | | | | NC | | |
| 1122 | AI/MS CONNECTOR | 35.00 | PURCHASE ONLY | | | | NC | | |
| 1123 | AI/MS RBT NON-POLARIZED FILT | 217.00 | PURCHASE ONLY | | | | NC | | |
| 1124 | AI/MS POLARIZED FILTER | 52.00 | PURCHASE ONLY | | | | NC | | |
| 1184 | VOLTAGE CHECK CARD | 70.00 | PURCHASE ONLY | | | | NC | | |
| 1240 | CONNECTOR 3-RIN | 3.50 | PURCHASE ONLY | | | | NC | | |
| 1570 | CAPACITOR NON-POLAR 10 MF | 7.00 | PURCHASE ONLY | | | | NC | | |
| 1670 | CURRENT RESIS 4-20 MA | 4.00 | PURCHASE ONLY | | | | NC | | |
| 1671 | CURRENT RESIS 1C-SC MA | 2.50 | PURCHASE ONLY | | | | NC | | |
| 3280 | DI CONTACT SENSE NON-ISOLATD | 68.00 | PURCHASE ONLY | | | | NC | | |
| 3281 | DI CONTACT SENSE | 39.00 | PURCHASE ONLY | | | | NC | | |
| 3282 | DI CUSTOM | 39.00 | PURCHASE ONLY | | | | NC | | |
| 3283 | DI VOLTAGE SENSE | 37.00 | PURCHASE ONLY | | | | NC | | |
| 3410 | DO CONNECTOR | 28.00 | PURCHASE ONLY | | | | NC | | |
| 3430 | DO CUSTOM | 76.00 | PURCHASE ONLY | | | | NC | | |
| 8185 | CONNECTOR 4-PIN | 4.00 | PURCHASE ONLY | | | | NC | | |
| 5100 AC1 | PORTABLE COMPUTER APL | 6985.00 | | | | | 75.00 | 1500.00# | 70 D 2 B 2 |
| AC2 | PORTABLE COMPUTER APL | 8735.00 | | | | | 80.50 | 1950.00# | 70 D 2 B 2 |
| AC3 | PORTABLE COMPUTER APL | 10485.00 | | | | | 86.50 | 2400.00# | 70 D 2 B 2 |
| AC4 | PORTABLE COMPUTER APL | 12235.00 | | | | | 92.00 | 2850.00# | 70 D 2 B 2 |
| B01 | PORTABLE COMPUTER BASIC | 6285.00 | | | | | 63.50 | 1350.00# | 70 D 2 B 2 |
| B02 | PORTABLE COMPUTER BASIC | 8035.00 | | | | | 69.00 | 1800.00# | 70 D 2 B 2 |
| B03 | PORTABLE COMPUTER BASIC | 9785.00 | | | | | 75.00 | 2250.00# | 70 D 2 B 2 |
| B04 | PORTABLE COMPUTER BASIC | 11535.00 | | | | | 80.50 | 2700.00# | 70 D 2 B 2 |
| CC1 | PORTABLE COMPUTER APL&BASIC | 7685.00 | | | | | 80.50 | 1650.00# | 70 D 2 B 2 |
| CC2 | PORTABLE COMPUTER APL&BASIC | 9435.00 | | | | | 86.50 | 2100.00# | 70 D 2 B 2 |
| CC3 | PORTABLE COMPUTER APL&BASIC | 11185.00 | | | | | 92.00 | 2550.00# | 70 D 2 B 2 |
| CC4 | PORTABLE COMPUTER APL&BASIC | 12935.00 | | | | | 98.00 | 3000.00# | 70 D 2 B 2 |
| 1501 | CARRYING CASE | 125.00 | PURCHASE ONLY | | | | NC | | |
| 1524 | EXPANSION FEATURE | 300.00 | | | | | 7.00 | 45.00# | 70 D 2 B 2 |
| 1525 | COMMUNICATIONS ADAPTER | 600.00 | | | | | 11.50 | 90.00# | 70 D 2 B 2 |
| 7601 | EXTERNAL I/O ADAPTER | 300.00 | | | | | 7.00 | 45.00# | 70 D 2 B 2 |
| 6301 | SERIAL I/O ADAPTER | 700.00 | | | | | 17.50 | 105.00# | 70 D 2 B 2 |
| ACC. | SX21-9237 TAPE CARTRIDGE | 100.00 | PURCHASE ONLY | | | | NC | | |
| 5103 001 | PRINTER 80 CPS | 3200.00 | | | | | 32.00 | 480.00# | 70 D 2 B 2 |
| 002 | PRINTER 120 CPS | 3700.00 | | | | | 39.00 | 555.00# | 70 D 2 B 2 |
| 011 | PRINTER 80CPS | 3200.00 | | | | | 32.00 | 480.00# | 70 D 2 B 2 |
| 012 | PRINTER 120CPS | 3700.00 | | | | | 39.00 | 555.00# | 70 D 2 B 2 |
| 4450 | FORMS STAND. | 54.00 | PURCHASE ONLY | | | | NC | | |
| 5106 001 | AUXILIARY TAPE UNIT | 1850.00 | | | | | 11.50 | 279.00# | 70 D 2 B 2 |
| 011 | AUXILIARY TAPE UNIT | 1850.00 | | | | | 11.50 | 279.00# | 70 D 2 B 2 |

NOTE: SOME PRICES HAVE CHANGED EFFECTIVE JANUARY 1, 1979. REFER TO NOTICE TO CUSTOMER DATED SEPTEMBER 26, 1978.

C4: OFFICE SYSTEM 6 U.K. PRICE LIST - £

MAGNETIC PRODUCTS & OFFICE SYSTEMS

PRICE LIST

DESCRIPTION

PURCHASE
PRICE

12 MONTH
LEASE/RENTAL
PER MONTH

24 MONTH
LEASE/RENTAL
PER MONTH

36 MONTH
LEASE/RENTAL
PER MONTH

ANNUAL
MAINTENANCE
FOR PURCHASE
ONLY

OFFICE SYSTEM 6 UK PRICE LIST - £

Magnetic Card Selectric Typewriter
Memory Card I Typewriter (MC80)
Memory Card II Typewriter (MC82)
6240 Magnetic Card Typewriter

3687
4695
5553
6568

141.25
190.95
226.05
245.00

124.25
167.75
198.95
216.00

-
-
-
206.00

338
491
554
898

Office System 6/420 Information Processor

6653

247.00

219.50

208.40

738

Office System 6/430 Information Processor

8451

304.00

267.50

255.40

772

Office System 6/442 Information Processor

11065

409.00

360.00

344.00

1145

Office System 6/452 Information Processor

13393

487.00

427.00

409.00

1248

Office System 6/440 Information Processor

16953

565.10

497.90

475.00

1287

Office System 6/450 Information Processor

19281

642.70

656.00

540.00

1390

Office System 6 Processing Feature

530

21.00

19.00

18.00

69

6640 Document Printer

16936

483.70

427.00

407.00

1030

APPENDIX D: CONTRACTS

D1: DPD CONTRACTS

- Licence Agreement for IBM Program Products
- Supplement to the Agreement for IBM
 Licensed Programs
- Special Programs Amendment
- Agreement for Sale of IBM Data Processing
 Machines

- 104 -

Licence Agreement for IBM Program Products

Customer Name

(hereinafter called 'the Customer')

Customer No.

Address (Registered Office)

Agreement No.

Branch Office No.

IBM United Kingdom Limited (hereinafter called IBM), by its acceptance of this Agreement by signature at its Head Office, agrees to grant and the Customer agrees to accept on the following terms and conditions non-transferable and non-exclusive licences (hereinafter called Licences) to USE within the United Kingdom the Program Products and basic materials (hereinafter together referred to as Licensed Programs), and related optional materials (hereinafter called Optional Materials), which are ordered from time to time by the Customer in accordance with the provisions of this Agreement.

1. Term

- a. This Agreement is effective from the date on which it is accepted by IBM and shall remain in force until terminated by the Customer upon one month's prior written notice, or by IBM as provided below. This Agreement may be terminated only when all Licences hereunder have been or are being discontinued.
- b. Certain Programs licenced hereunder will be made available for a pre-installation testing period (Testing Period) as specified by IBM in the Supplement to Licence Agreement for IBM Program Products. The Testing Period will begin 10 days after shipment of the Program by IBM and will end upon expiration of the specified period, or upon the Customer achieving productive USE of the Program, whichever is earlier. After this Testing Period the minimum period for each Licence under this Agreement is a period ending one month from the commencement of the monthly charges for that Licence. For Programs for which IBM does not specify a Testing Period the minimum period will begin 10 days after shipment of the Program by IBM. Any Licence under this Agreement may be discontinued by the Customer upon written notice at any time during the Testing Period, or at the conclusion of the minimum period, or at any time thereafter, upon at least one month's prior written notice. IBM may discontinue any Licence or terminate this Agreement if the Customer fails to comply with any of the terms and conditions of this Agreement, or as provided in the section of this Agreement entitled "Patent and Copyright Indemnification." Notice of discontinuance of any Licence for a Licensed Program will be notice of discontinuance of any Licence for Optional Material obtained in connection with such Licence for a Licensed Program. Notice of discontinuance of any or all Licences will not be considered notice of termination of this Agreement unless that is specifically stated.

2. Licence

- a. Each Licence for a Licensed Program granted under this Agreement authorises the Customer to USE the Licensed Program in any machine readable form on a single central processing unit designated by type and serial number and its associated equipment (hereinafter together referred to as the Designated CPU) or on the central processing unit designated under another then current Licence for the identical Licensed Program. Each Licence for Optional Materials granted under this Agreement authorises the Customer to USE the Optional Materials in any machine readable form only on the Designated CPU specified for the related Licensed Program or on the central processing unit designated under another then current Licence for the identical related Licensed Program. A separate Licence is required for each central processing unit on which the Licensed Program and/or Optional Material in any machine readable form will be USED, provided however that the Licence granted under this Agreement for the Designated CPU shall be temporarily transferred to (1) one back-up central processing unit if the Designated CPU is inoperative due to malfunction, or during the performance of preventive maintenance, engineering changes, or changes in features or model, until the Designated CPU is restored to operative status and processing of the data already entered into the back-up central processing unit is completed, and (2) one other central processing unit for assembly or compilation of the Licensed Program if the specifications of the Designated CPU are such that the Licensed Program cannot be assembled or compiled on the Designated CPU. If a Licence is granted under this Agreement for a central processing unit which has been ordered but which has not yet been delivered the central processing

unit shall initially be designated by reference to the machine agreement and its date, and the designation of such central processing unit by type and serial number shall be made when such central processing unit is delivered; and if a Licence is granted under this Agreement for a central processing unit which has been ordered but which has not yet been installed, this Licence shall be temporarily transferred to one other central processing unit until the Designated CPU is installed. For purposes of this Agreement, USE is defined as copying for processing any portion of the instructions or data in any Licensed Program and/or Optional Materials from storage units or media into the Designated CPU or, to the extent authorised above, into another central processing unit. Licences granted under this Agreement authorise the Customer to employ Licensed Programs and/or Optional Materials, in printed form, in support of the USE of such Licensed Programs and/or Optional Materials in machine readable form.

- b. Certain licences may provide for an installation licence, if this is specified in the relevant Supplement, by the words 'Installation Licence Applies.' In this event all references to 'the Designated CPU' shall be considered amended to read 'the Designated CPU and any other CPU located in the same installation as the Designated CPU.' Only a single room, or contiguous rooms will qualify as 'same installation' unless otherwise agreed to in writing by IBM. For all Licensed Programs for which IBM does not indicate 'Installation Licence Applies' all other provisions of this Agreement will apply.
- c. Licensed Programs and Optional Materials, which are provided by IBM in printed form under the terms of this Agreement (referred to as Program Documentation), will be shipped to the Customer at his request by IBM up to six months prior to shipment of the complete Program (which includes machine readable materials). Each Licence for a Licensed Program authorises the Customer to utilise Program Documentation which is shipped prior to shipment of the complete Program, provided that the Customer agrees not to USE any such Program Documentation in machine readable form for any purpose. Within the six month period following the date of shipment of the Program Documentation by IBM, the Customer agrees that he will request that the complete Program be shipped prior to, or at the conclusion of, the six month period or will discontinue his Licence for that particular Program. The provisions for discontinuing a Licence for a Licensed Program hereunder are in addition to those set forth in the Clause entitled "Term." The provisions of the Clause entitled "Discontinuance" apply to all Licences for Licensed Programs even though only Program Documentation is shipped.
- d. This Agreement and any of the Licences, Licensed Programs or Optional Materials to which it applies may not be assigned, sublicensed or otherwise transferred by the Customer without prior written consent from IBM. The Customer shall not at any time, during or after the term of this Agreement, print, copy, translate, adapt or record, in whole or in part, the Licensed Programs or Optional Materials except as herein expressly provided.
3. Charges
 - a. Monthly charges will begin on the day following the end of the Testing Period, or 10 days after shipment of the Program by IBM if there is no Testing Period. In the event the Customer discontinues the Licence for a Licensed Program and reorders a Licensed Program with the same Program number (the "same Program") for the same installation, the Customer agrees that no Testing Period will be provided for that particular Licence for a Licensed Program and therefore monthly charges and the minimum period will begin 10 days after shipment of the Licensed Program by IBM. Charges will be invoiced in advance and

will be payable within 30 days after the date of invoice. Charges for a partial month will be prorated on the basis of the number of days in the month.

- b. Monthly charges are subject to change by IBM upon three months' prior written notice to the Customer. If the monthly charge is increased for any Licence for a Licensed Program, the Customer may discontinue it prior to the effective date of such change; otherwise, the new charge will become effective.
- c. Certain Licences may, if this is specified in the relevant Supplement, be subject to initial charges (in addition to monthly charges), or to single charges per Licence term (in lieu of monthly charges), in effect from time to time.
- d. When shipment of Program Documentation is requested prior to shipment of the complete Program, there will be a charge for the Program Documentation equal to one month's charge for the complete Program (including any initial charge) or the single charge which may be in lieu of monthly charges. The charge will be invoiced 10 days after shipment and will be payable on receipt. If the Customer requests that the complete Program be shipped prior to or at the conclusion of the six-month period following the date of shipment of the Program Documentation by IBM, this charge will be credited to the first month's invoice for the complete Program. If Program Documentation has been made available prior to shipment of the complete Program and the Customer discontinues and reorders the same Program for the same installation, Program Documentation will not again be made available prior to shipment of the complete Program.
- e. There shall be added to any charges under this Agreement amounts equal to any taxes and import or other duties, or amounts in lieu thereof, however designated, levied or based on such charges or on this Agreement or the Licensed Programs or Optional Materials or their use, or the program storage media, excluding, however, taxes assessed upon profits or gains.

4. Licence Redesignation

The Customer may notify IBM of his intention to change the central processing unit, within the United Kingdom, on which a Licensed Program and Optional Material are designated to be USED. The redesignation will be effective upon the date specified in an amendment to the applicable Supplement, entitled Confirmation of Change of Designated CPU and furnished to the Customer by IBM.

5. Additional Licences

Under this Agreement the Customer may, from time to time, order additional Licences for a Licensed Program and/or Optional Material already under Licence to him, as well as Licences for other Licensed Programs and/or Optional Materials. All orders will be subject to acceptance by IBM under this Agreement and to the charges, terms and conditions then in effect. Orders for Licences should be in writing and should refer to this Agreement by number. IBM will confirm such orders and grant such Licences by Supplements to this Agreement.

6. Basic Materials

Licences for Licensed Programs granted under this Agreement will govern any basic materials, in machine readable or printed form, provided by IBM in the quantities specified by IBM for each such Licence, and any additional copies in printed form licensed from IBM at the charges then in effect.

7. Related Optional Materials

For certain Licensed Programs IBM will offer to licence Optional Materials, under this Agreement or under a separate Agreement, provided, however, that Optional Materials will only be available to Customers who have Licensed Programs to which such Optional Materials relate. Optional Materials will be provided by IBM in the quantities specified by IBM for each Licence for Optional Materials. Any additional copies in printed form may be licensed at charges then in effect.

8. Programming Services

- a. For specified Licensed Programs, IBM will provide programming services after delivery, without additional charge, to correct Licensed Program errors and issue corrected releases. However, IBM does not guarantee service results or represent or warrant that all errors will be corrected.
- b. The Programming Service Classification of each Licensed Program will be specified by IBM in the relevant Supplement. The Programming Service Classification of any Licensed Program may be changed by IBM upon six months' prior written notice except as provided in the clause of this Agreement entitled 'Patent and Copyright Indemnification.' Some reclassifications may constitute a discontinuance of services.
- c. The Programming Service Classifications are:
 - i. Classification A

When the Customer encounters a problem which IBM's diagnosis indicates is caused by a defect in a current unaltered release of the Licensed Program, IBM Customer Engineering will (1) if the Licensed Program is inoperable, apply a Program Temporary Fix (PTF), or make a reasonable attempt to develop an emergency by-pass, and (2) prepare an Authorised Program Analysis Report (APAR) and submit it to an IBM Central Programming Service location.

IBM Central Programming Service will respond to any problem caused by a defect in a current unaltered release of the Licensed Program by issuing a PTF to the originator of the APAR and/or by issuing corrected code or notice of estimated availability of corrected code. Corrections will be incorporated into new releases of the Licensed Program which will be made available to the Customer by IBM. Any other programming services or assistance will be provided at a charge.

- ii. Classification B

When the Customer encounters a problem which his diagnosis indicates is caused by a Licensed Program defect, the Customer may submit an APAR to an IBM Central Programming Service location.

IBM Central Programming Service will respond to any problem caused by a defect in a current unaltered release of the Licensed Program by issuing a PTF to the originator of the APAR and/or by issuing corrected code or notice of estimated availability of corrected code. Corrections will be incorporated into new releases of the Licensed Program which will be made available to the Customer by IBM. On request, IBM Systems Engineering personnel will assist the customer in (1) diagnosing defects and preparing APARs for submission to an IBM Central Programming Service location, and (2) if the Licensed Program is inoperable, applying a PTF, or making a reasonable attempt to develop an emergency by-pass pending the IBM Central Programming Service response to the APAR submitted. Any other programming services or assistance will be provided at a charge.

iii. Classification C

Programming assistance will be provided at a charge. Central Programming Service will not be provided, except for corrections applicable to APARs received prior to the date Classification C becomes effective for a Licensed Program previously assigned to Classification A or B.

- d. For Program Documentation shipped prior to shipment of the complete Program, programming services or assistance will be provided at a charge; IBM Central Programming Service will not be provided.
- e. IBM shall have the right to make additional charges for any additional effort required to provide programming services as a result of the Customer's use of other than a current unaltered release of the Licensed Program.

9. Permission to Copy or Modify Licensed Programs

- a. The Customer shall not copy, in whole or in part, any Licensed Programs or Optional Materials which are provided by IBM in printed form under this Agreement. Additional copies of Licensed Programs or Optional Materials in printed form may be licensed from IBM at the charges then in effect.
- b. Any Licensed Programs or Optional Materials which are provided by IBM in machine readable form may be copied, in whole or in part, in printed or machine readable form in sufficient number for the Customer's purposes for USE by the Customer with the Designated CPU, to understand the contents of such machine readable material, to modify the Licensed Program as provided below, for back-up purposes as provided in the Clause of this Agreement entitled "Licence," or for archive purposes, provided, however, that no more than five printed copies will be in existence under any Licence at any one time without prior written consent from IBM. The Customer agrees to maintain appropriate records of the number and location of all copies that he may make of Licensed Programs or Optional Materials which are provided by IBM in machine readable form. The original, and any copies of Licensed Programs and/or Optional Materials, in whole or in part, shall be the property of IBM.
- c. If the original or any copy of a Licensed Program or Optional Material will be kept at any place other than the location of the Designated CPU, the Customer will notify IBM in writing of a designated location for the original or copy. However, the Customer may transport or transmit the original or any copy of a Licensed Program to another location when the Licence is temporarily transferred as provided in the clause of this Agreement entitled "Licence," provided that the original or the copy respectively is destroyed or returned to its designated location when the period of temporary transfer is concluded and the Licence reverts back to the Designated CPU.
- d. The Customer may modify any Licensed Program and/or Optional Material, in machine readable form, for his own USE and may merge all or part of it into other program material to form an updated work, provided that, upon discontinuance of the Licence for such Licensed Program, the Licensed Program and Optional Materials supplied by IBM will be completely removed from the updated work and destroyed. Any portion of the Licensed Program or Optional Material included in an updated work shall be USED only on the Designated CPU, and shall remain subject to all the terms and conditions of this Agreement.

- e. The Customer agrees to reproduce and include IBM's copyright notice on any copies of Licensed Programs or Optional Materials in accord with the copyright instructions to be provided by IBM. This requirement shall apply to all such copies in any form, whether partial or complete, and whether or not modified or merged as authorized herein.

10. Protection and Security

The Customer shall, both during and after the term of this Agreement, ensure that no Licensed Program or Optional Material, including, but not limited to, flow charts logic diagrams and source code, in any form is disclosed, provided or made available without prior written consent from IBM except to employees of the Customer or IBM and to any other person during the period when he is on the Customer's premises with the Customer's permission for purposes specifically related to the Customer's USE of the Licensed Program or Optional Material.

11. Patent and Copyright Indemnification

IBM will defend at its expense any action brought against the Customer to the extent that it is based on a claim that Licensed Programs or Optional Materials USED within the scope of a Licence hereunder, infringe copyright in the United Kingdom or a United Kingdom patent, and, subject to the limitation of liability stated herein, IBM will pay any costs, damage and legal fees finally awarded against the Customer in such action which are attributable to such claim, provided that the Customer has notified IBM promptly in writing of the claim and allowed IBM to participate fully in the defence and/or provided that IBM has agreed to any settlement of such claim. Should the Licensed Programs or Optional Materials become, or in IBM's opinion be likely to become, the subject of a claim of infringement of copyright or a patent, IBM may at its option procure for the Customer the right to continue USING the Licensed Programs or Optional Materials, or replace or modify them to make them non-infringing. If neither of the foregoing alternatives is reasonably available to IBM, then IBM may discontinue the Licences for the Licensed Program and/or Optional Material upon one month's prior written notice to the Customer. However, if the Licensed Program and/or Optional Material is not the subject of an actual or potential claim of copyright infringement, the Customer may notify IBM in writing during the one month after IBM's notice of discontinuance that the Customer elects to continue to be licensed until there has been an injunction with respect to the Licensed Program and/or Optional Material, and agrees to undertake at the Customer's expense the defence of any action against the Customer and to indemnify IBM with respect to all costs, damages and legal fees attributable to such continued USE after such notice has been given to IBM; it being understood that IBM may participate at its expense in the defence of any such action if such claim is against IBM. In any event, upon IBM's written notice of discontinuance to the Customer, a Licensed Program with Programming Service Classification A or B will be changed to Programming Service Classification C. IBM shall not have any liability with respect to such act of replacement, modification, discontinuance or reclassification, or with respect to any claim of copyright or patent infringement based on (1) USE of other than a current unaltered release of the Licensed Program and/or Optional Material available from IBM if such infringement would have been avoided by the USE of a current unaltered release of the Licensed Program and/or Optional Material available from IBM or (2) USE or combination of the Licensed Program and/or Optional Material with non-IBM programs or data, if such infringement would have been avoided in the absence of such USE or combination. The foregoing states the entire liability of IBM with respect to

infringement of any copyright or patents by the Licensed Programs and/or Optional Materials or any parts thereof.

12. Responsibilities of the Parties

- a. IBM will publish design objectives and estimated availability dates for Licensed Programs which it announces. However, IBM does not represent or warrant that such design objectives or estimated availability dates will be met.
- b. IBM will publish Program Product Specifications for each Licensed Program with Programming Service Classification A or B as the Licensed Program is included in the IBM Program Library (hereinafter called the Library).
- c. IBM will provide a functional description of each Licensed Program with Programming Service Classification C as it is included in the Library.
- d. The Customer shall be exclusively responsible for the supervision, management and control of his USE of the Licensed Programs, and/or Optional Materials, including but not limited to: (1) assuring proper machine configuration, program installation, audit controls and operating methods, (2) establishing adequate back-up plans, based on alternative procedures and/or based on access to qualified programming personnel to diagnose, patch, and repair Licensed Program defects, in the event of a Licensed Program malfunction, (3) implementing sufficient procedures and check points to satisfy his requirements for security and accuracy of input and output, and (4) implementing sufficient procedures for restart and recovery in the event of any malfunction.
- e. The Customer agrees that he will take appropriate action by instruction, agreement, and/or otherwise with his employees and other persons permitted access to Licensed Programs and/or Optional Materials to satisfy his obligations under this Agreement with respect to USE, copying, modification, and protection and security of Licensed Programs and Optional Materials.

13. Delivery

- a. Announced Licensed Programs will be included in the Library when available. Unless the Customer requests a later delivery date, Licensed Programs which are in the Library will be shipped from the Library generally within one month after acceptance of the order by an authorized signatory of IBM's Head Office, subject to conditions beyond IBM's control. However, IBM does not represent or warrant that availability or shipment dates will be met.
- b. Program storage media (such as magnetic tapes and disks) will be provided at a separate charge by IBM if not supplied by the Customer. A fee for handling and service may be separately charged when program storage media are supplied by the Customer. Licensed Programs will be shipped to the Customer without charge for shipment. IBM reserves the right to select the method of shipment. If the Customer requests special shipment and IBM provides it, the Customer agrees to pay the added costs, if any, for the special shipment.

14. Risk of Loss

- a. If any Licensed Program or Optional Material is lost or damaged during shipment, IBM will replace the Licensed Program or Optional Material and will provide an equivalent program storage medium at no additional charge to the Customer.

- b. If any Licensed Program or Optional Material is lost or damaged while in the possession of the Customer, IBM will replace the Licensed Program or Optional Material but will charge for the program storage medium unless it has been provided by the Customer.

15. Discontinuance

- a. Within one month after the date of discontinuance of any Licence under this Agreement, the Customer will furnish to IBM a completed IBM Program Product Certificate of Discontinuance certifying that the original and all copies of the Licensed Program and any Optional Material received from IBM or made in connection with such Licence have been destroyed. This requirement shall apply to all such copies in any form, whether partial or complete, and whether or not modified or merged as authorized herein, and shall continue after termination of this Agreement. However, upon prior written authorization from IBM, the Customer may retain a copy for archive purposes only.
- b. However, where the Customer is licensed to USE a successive version of the Licensed Program which carries a different Program number, the Customer may retain the prior version of the Licensed Program for backup purposes for a period not to exceed three months following the date of discontinuance. The Customer agrees that any such backup copy will be USED only in the event of a problem in the successive version of the Licensed Program which prevents its USE. In no case will both the prior and the successive versions of the Licensed Program be USED simultaneously for productive purposes. Within one month following this three-month period, the Customer will furnish IBM a completed Program Product Certificate of Discontinuance as indicated above.

16. Warranty

- a. Each Licensed Program with Programming Service Classification A or B will conform to its published Program Product Specifications when it is shipped to the Customer. Sample data will be shipped with such Licensed Programs to enable the Customer to confirm that he has received a valid copy.
- b. Each Licensed Program with Programming Service Classification C and all Optional Materials will be distributed on an 'as is' basis without warranty.

17. Limitation of Liability

- a. The foregoing warranty is in lieu and exclusive of all other warranties and conditions, express or implied, statutory or otherwise, whether under this Agreement or any Licence hereunder or otherwise, relating in any way to the Licensed Programs or Optional Materials, including, but not limited to, the implied warranties or conditions of merchantable quality and fitness for a particular purpose.
- b. The Customer agrees that IBM's aggregate liability for damages hereunder including but not limited to liability for patent infringements, but excluding liability for copyright infringements, regardless of the form of action, shall not exceed the charges paid by the Customer for the particular Licensed Program and/or Optional Material involved. During the Testing Period, for which no charges are payable, there shall be no liability hereunder for damages, other than for copyright infringements.
- c. The Customer further agrees that IBM will not be liable in respect of any loss of profits, or any claim or demand against the Customer by

any other party except a claim for patent or copyright infringement as provided herein.

- d. In no event will IBM be liable for damages in respect of special, indirect or consequential loss even if IBM has been advised of the possibility of such loss.
- e. The Customer's remedies as set forth in this Agreement are his exclusive remedies.

18. General

- a. The terms and conditions of this Agreement may be changed by IBM upon six months' prior written notice to the Customer except for the terms and conditions which relate specifically to (1) discontinuance of this Agreement or of Licences granted under this Agreement as provided a) in the clause of this Agreement entitled 'Term' and b) in the clause of this Agreement entitled 'Patent and Copyright Indemnification' and (2) the period of notice required to be given by IBM as provided in the clause of this Agreement entitled 'Charges'. The Customer may discontinue any Licence or terminate this Agreement and all Licences then outstanding on the effective date of such change upon one month's prior written notice to IBM; otherwise such change shall become effective.
- b. The term "this Agreement" as used herein includes any future written amendments or supplements made in accordance herewith.

- c. No alteration, modification or addition to this Agreement nor any waiver by IBM of any of the terms and conditions contained in this Agreement shall be valid unless made in writing and signed by a duly authorised representative of IBM at its Head Office.
- d. If any of the provisions, or portions thereof, of this Agreement are held to be invalid under any applicable statute or rule of law, they are to that extent to be deemed omitted.
- e. The terms and conditions of this Agreement shall prevail notwithstanding any variance with the terms and conditions of any order submitted by the Customer for any Licences hereunder. The Customer agrees that his acceptance of delivery of any Licensed Program or Optional Material from IBM is conclusive evidence of his agreement that the Licence for such Licensed Program or Optional Material is governed by the terms and conditions of this Agreement and the Supplement covering the said Licence.
- f. This Agreement together with any Supplements hereunder shall constitute the entire agreement between the Customer and IBM and shall supersede all proposals oral or written and all other communications between the Customer and IBM relating to the subject matter of this Agreement. No representation or statement not contained in this Agreement or in a Supplement hereunder shall be binding upon IBM as a condition or warranty or otherwise.
- g. This Agreement shall be governed by the Laws of England.

Signed for and on behalf of (name of Customer)

by

Authorised signature

Title

Date

Signed for and on behalf of
IBM United Kingdom Limited

by

Authorised signature

Title

Date

- 110 -

*Supplement to the
Agreement for IBM
Licensed Programs*

Customer Name

Customer No.

Branch Office No.

Licence Agreement No.

Supplement No.

Customer Address

The Customer has requested Licences for the Licensed Programs and/or Optional Materials specified overleaf and has agreed to accept such Licences under the terms and conditions of the Agreement for IBM Licensed Programs referenced herein, of which this Supplement shall be deemed to be a part.

IBM United Kingdom Limited (IBM) hereby confirms and accepts the Customer's request for the Licences shown overleaf. IBM hereby grants to the Customer non-transferable, non-exclusive Licences for the Licensed Programs and/or Optional Materials listed overleaf under the terms and conditions of the above referenced Agreement for IBM Licensed Programs.

Signed for and on behalf of
IBM United Kingdom Limited by (authorised signature)

Date

Licensed Program List

| Licensed Program/ Optional Material | Designated Machine | | Inst'n/ Loc'n Licence Applies | W'ty (Yes or No) | Test Period (Days) | Estimated Shipping Date/ Effective Date for Additional Licenses | Charge | Ch'ging Proc. * | Paym't Period (if app) | Program Services (See Notes) | | |
|--|---------------------|----------|--|------------------------|--------------------------|---|--------|-----------------------|------------------------------|---------------------------------|--------------------------|-------------------------|
| | Type/ Serial No. | Location | | | | | | | | Central | Local Serv/ Assist | Date/Months (if app) |
| | | | | | | | | | | | | |

* Charging Procedure Program Services Notes

- | | |
|--------------------------------|--|
| 1. Monthly | 1. Available until discontinued by IBM upon 6 months' notice |
| 2. One-time in lieu of Monthly | 2. Available until date specified |
| 3. Initial Charge | 3. Available for number of months specified |
| 4. Process Charge | |

AMENDMENT TO AGREEMENT FOR IBM LICENSED PROGRAMS

CUSTOMER REMEDIES

For all Supplements issued by IBM on or after 1 February 1978, the terms and conditions of the above Agreement shall be amended by the deletion of Clause 17 and the substitution of the following Clause 17 (Customer Remedies):

17. Customer Remedies

17.1 Exclusive Remedies

IBM's entire liability and the Customer's sole remedies in respect of any "Default" shall be as set out in this Clause 17.

"Default" shall mean any breach of IBM's obligations hereunder or any fundamental breach or breach of a fundamental term of this Agreement or any default, act, omission or statement of IBM, its employees, agents or sub-contractors in connection with or in relation to the subject matter of this Agreement and in respect of which IBM is legally liable to the Customer.

This Clause 17 shall not confer rights or remedies on the Customer to which he would not otherwise be legally entitled.

17.2 Personal Injury

IBM does not exclude liability for death or personal injury to the extent that it results from the negligence of IBM, its employees, agents or sub-contractors.

17.3 Property Damage

Subject to Clause 17.7, IBM does not exclude liability for direct physical damage to tangible property of the Customer, to the extent that it is caused by the negligence of IBM its employees, agents or sub-contractors.

17.4 Damages Remedy

The Customer's remedies (whether in contract or in tort including negligence) against IBM for any Default shall be limited to damages. Such damages shall be subject to the limitations by amount and type specified in this Clause 17. For the purpose of this Clause 17 this Agreement shall include any Supplement issued under this Agreement.

17.5 Specific Remedies

In respect of any Default relating to Licensed Program Material or Program Services furnished hereunder, IBM's liability for damages shall be limited as follows:

17.5.1 IBM shall always be afforded reasonable opportunity to correct any deficiency in the Licensed Program Material or Program Services before being in breach of its obligations under this Agreement. If, in the event of a Default, the Customer thereafter incurs "Expenses" (as defined below) the Customer may recover from IBM damages equal to the amount of those "Expenses".

17.5.2 a) The Customer shall permit IBM to take all reasonable measures to correct program defects or errors in the Licensed Program Material so as to make the Licensed Program Material operate as warranted and at the option of IBM to substitute the Licensed Program Material and to take such other measures as may be necessary in each case to correct a Default. b) If after repeated efforts IBM fails to correct the Default and the Default is material and as a result the Customer discontinues the Licence for the affected Licensed Program Material the Customer may, in addition to damages for "Expenses" as provided in Clause 17.5.1, recover from IBM damages equal to "Set Up Costs" (as defined below).

17.5.3 "Expenses" shall mean such costs actually incurred by the Customer as are in excess of the costs that would have otherwise been incurred by him in the absence of any Default provided that such costs are directly caused by the Default and are reasonably and necessarily incurred by the Customer in using the Licensed Program Material or other program material used in substitution for or in addition to the Licensed Program Material.

"Set Up Costs" shall mean that part of the specific costs of normal preparations for the use of the Licensed Program Material which have been actually incurred by the Customer and which were reasonably and necessarily incurred by him after signature by IBM of the Supplement granting the licence for the Licensed Program Material provided that such costs are directly related to Licensed Program Material in respect of which IBM is liable and for which the Customer has discontinued the Licence together with any initial charges or one time charges associated with such Licensed Program Material.

17.5.4 IBM shall not be liable for (i) performance or non performance of the Licensed Program Material during the Testing Period, (ii) Expenses to the extent that IBM affords the Customer a reasonable opportunity to reduce those Expenses by using alternative program materials (iii) Set Up Costs, to the extent that the preparations referred to in Clause 17.5.3 are of use for any alternative program materials.

17.5.5 IBM shall not be liable for Expenses incurred under Clauses 17.5.1 or 17.5.2 after the date:

- i) on which IBM corrects the Default, as provided in Clause 17.5.2(a);
- ii) the Customer discontinues the Licence for the affected Licensed Program Material;
- iii) twelve months after the date on which IBM became liable for the Default;

whichever shall first occur.

17.5.6 IBM shall in no circumstances be liable for Set Up Costs unless IBM is informed of the Default within 12 months of the date of commencement of charges for the Licensed Program Material as specified herein.

17.5.7 The Customer may discontinue a Licence for Licensed Program Material for any material breach of the Agreement by IBM.

17.5.8 IBM's liability under this Clause 17.5 shall be subject to the limitations in this Clause 17.

17.6 Monetary Limits of Damages

IBM's total liability in respect of any one Default shall not exceed the greater of \$20,000 or "Twelve Months Charges". The "Twelve Months Charges" shall mean those charges, including any initial process or one-time charges, which would be applicable (at the time the Default occurred) to a Licence for the Licensed Program Material over a period of 12 months.

A number of Defaults, whether successive or concurrent, which together result in or contribute to substantially the same loss or damage shall be treated as one Default which for the purpose of determining the "Twelve Months Charges" shall be deemed to occur at the date of the occurrence of the last of such Defaults.

The monetary limits set out above shall not apply to any liability on the part of IBM referred to in Clause 17.2 and 17.3 above. IBM's liability under Clause 16A to pay costs and damages awarded against the Customer shall be limited to the amounts applicable under this Clause 17.6 above in respect of patent infringement but shall not be so limited in respect of any claims of copyright infringement.

• 17.7 Type of Damages Liability

Except as provided in Clause 17.2 but otherwise notwithstanding any other provision herein contained in no event shall IBM be liable for the following loss or damage howsoever caused and even if foreseeable by or in the contemplation of IBM:

1. Economic loss which shall include loss of profits, business, revenue, goodwill and anticipated savings.
2. Damages in respect of special, indirect or consequential loss or damage (other than Expenses, Set Up Costs, or direct physical damage to tangible property of the Customer caused by the negligence of IBM; its employees, agents or sub-contractors).
3. Any claim made against the Customer by any other party (save as expressly provided in Clause 16A).

17.3 Time Limit For Actions

Except in respect of the liability of IBM referred to in Clause 17.2 no action (whether in contract or in tort, including negligence, and regardless of form including arbitration proceedings) arising out of the Agreement or in connection with a Licence, Licensed Program Material, Program Services, or other services of any kind supplied or to be supplied hereunder may be brought by either party more than two years after the party concerned becomes aware or should reasonably have become aware of the facts constituting the cause of action.

17.9 Exclusions

Licensed Program Material has not been produced to meet individual customer specifications and it is, therefore, for the Customer to implement his application of the Licensed Program Material together with data processing machines and programs selected by the Customer, in combination to meet his specific requirements. The Licensed Program Material cannot be tested in every possible combination and operating environment. IBM is unable to represent that its operation will be uninterrupted or error free. The testing period and the early availability of printed Material are designed to assist the Customer's evaluation and implementation. The continuing management and operation of the Licensed Program Material, machines and other programs in combination, and any changes thereto, are under the control of the Customer. Accordingly the Customer accepts that it is reasonable for IBM to limit its liability under this Agreement and the Customer further agrees that except as expressly set forth in this Agreement, all conditions or warranties, express or implied, statutory or otherwise (including, but not limited to any concerning the fitness of any Licensed Program Material for a particular purpose) are hereby excluded.

IBM shall not be liable for any loss or damage caused by the Customer's failure to fulfill his responsibilities under this Agreement or arising from any matter under the control of the Customer.

17.10 Application Of This Clause 17

The parties expressly agree that should any limitation or provision contained in this Clause 17 be held to be invalid under any applicable statute or rule of law it shall to that extent be deemed omitted and if IBM thereby becomes liable for loss or damage which would otherwise have been excluded such liability shall be subject to the other limitations and provisions set out above.

- 115 -

*Special Programs
Amendment
(To Licence Agreement for IBM
Program Products)*

Name and Address of Customer

(hereinafter called 'the Customer')

Licence Agreement No.

Customer No.

Amendment No.

IBM United Kingdom Limited (IBM) by its acceptance of this Amendment, agrees to amend the above-numbered Licence Agreement for IBM Program Products and both parties agree to this Amendment on the following terms and conditions. This Amendment applies solely to licences for Special Programs listed in any Supplement to this Amendment and in no way affects the terms and conditions of present or future licences for other programs subject to the Licence Agreement for IBM Program Products.

Under this Special Programs Amendment the Customer may from time to time order a Licence for a Special Program including basic materials (together referred to as a Licensed Program) and related optional materials (Optional Materials), if any, as well as additional Licences for other Licensed Programs and/or Optional Materials already under licence to him.

All orders will be subject to acceptance by IBM under the above referenced Licence Agreement for IBM Program Products as modified by this Special Programs Amendment and to the charges, terms and conditions then in effect. Orders for such Licences should be in writing and should refer to the above referenced Licence Agreement for IBM Program Products by number, and to this Special Programs Amendment by number. IBM will confirm such orders and grant such Licences by Supplements to this Amendment, which are deemed to form part of this Amendment.

Each Licence for a Licensed Program and/or Optional Materials shall be governed by the above referenced Licence Agreement for IBM Program Products except that, for such Licensed Programs, the conditions entitled 'Charges,' 'Programming Services,' 'Patent and Copyright Indemnification,' 'Responsibilities of the Parties,' and 'Warranty' will be replaced by the following conditions:

1. Charges

(a) There are four different charging procedures associated with Special Programs. The charging procedure associated with each Licensed Program will be specified by IBM in the relevant Supplement to this Amendment. The four charging procedures are:

(i) Procedure 1: Continuing Monthly Charges

Certain Licences for Licensed Programs will be subject to monthly charges which will continue until the Licence is discontinued by either IBM or the Customer in accordance with the provisions herein.

(ii) Procedure 2: Monthly Charges Over a Fixed Payment Period

Certain Licences for Licensed Programs will be subject to monthly charges for a specified number of consecutive months (Payment Period) in lieu of the monthly charges described above. Upon payment of monthly charges for the Payment Period for a Licence for a Licensed Program, IBM will waive all future monthly charges for that Licence.

(iii) Procedure 3: Single Charge

Certain Licences for Licensed Programs will be subject to a single charge for a Licence period in lieu of monthly charges.

(iv) Procedure 4: Process Charge and Monthly Charges over a Fixed Payment Period

A Licence for a Country Generated Program (CGP) will be subject to a process charge each time a specially generated version of a CGP is delivered to the Customer. In addition a Licence for a CGP will be subject to monthly charges for a Payment Period in lieu of the monthly charges described under Procedure 1 above. Upon payment of monthly charges for the Payment Period for a Licence for a CGP, IBM will waive all future monthly charges for that Licence. If the Customer requests more than one Licence for the same specially generated version of a CGP, each Licence will be subject to monthly charges as described in this paragraph but only one Licence will be subject to a process charge.

(b) Certain Licences for Licensed Programs may be subject to an initial charge in addition to the monthly charges under Procedures 1 and 2 above.

(c) Monthly charges will begin on the day following the end of the Testing Period, or 10 days after the shipment of the program by IBM if there is no Testing Period. In the event the Customer discontinues the Licence for a Licensed Program and re-orders a Licensed Program with the same Program Number (the 'same Program') for the same installation, the Customer agrees that no Testing Period will be provided for that particular Licence for the Licensed Program and therefore monthly charges and the minimum period of one month will begin 10 days after shipment of the program by IBM. Monthly charges will be invoiced in advance and will be payable within 30 days after the date of invoice. Charges for a partial month will be prorated on the basis of the number of days in the month.

(d) Single charges and initial charges, if any, will be invoiced prior to shipment of the program and will be payable on the day following the end of the Testing Period, or 10 days after shipment of the Program by IBM if there is no Testing Period. Process charges, if any, will be invoiced prior to shipment of the Program and will be payable within 30 days after the date of invoice.

(e) Monthly charges of the types described above are subject to change by IBM upon at least three months' prior written notice to the Customer. Single and initial charges are subject to change by IBM without notice. Process charges are subject to change by IBM upon written notice to the Customer at least one month prior to the date a specially generated version of the CGP is delivered to the Customer. If the monthly charge is increased for any Licence for a Licensed Program, the Customer may discontinue it upon at least one month's prior written notice to IBM. If the single, initial or process charges are increased for any Licence for a Licensed Program, the Customer may discontinue it immediately by giving written notice. Otherwise, in any case, the new charge will become effective.

(f) If Program Documentation is available and the Customer requests its shipment prior to shipment of the complete Program, there will be a charge for the Program Documentation equal to one month's charge for the complete Program (including any initial or process charges as applicable) or the single charge which may be in lieu of monthly charges. The charge will be invoiced 10 days after shipment and will be payable upon receipt of invoice. If the Customer requests that the complete Program be shipped prior to or at the conclusion of the six-month period following the date of shipment of the Program Documentation by IBM, this charge will be credited to the first month's invoice for the complete Program or against the single charge, whichever is applicable. If Program Documentation has been made available prior to shipment of the complete Program and the Customer discontinues and re-orders the same Program for the same installation, Program Documentation will not again be made available prior to shipment of the complete Program.

(g) There will be added to any charges under this Amendment amounts equal to any taxes and import or other duties, or amounts in lieu thereof, however designated, levied or based on such charges or on this Amendment or Licensed Programs or Optional Materials or their USE or on program storage media, excluding however, taxes assessed upon profits or gains.

2. Programming Services.

(a) For specified Licensed Programs IBM will provide programming services after delivery, without additional charge, to correct Licensed Program errors and issue corrected releases. However, IBM does not guarantee service results or represent or warrant that all errors will be corrected.

(b) The Programming Service Classification of each Licensed Program will be specified by IBM in the relevant Supplement. The Programming Service Classification of any Licensed Program may be changed by IBM upon at least six months' prior written notice except as provided in the section of this Amendment entitled 'Patent and Copyright Indemnification.' Some reclassifications may constitute a discontinuance of Services.

(c) The Programming Service Classifications are:

(i) Classification A

When the Customer encounters a problem which IBM Customer Engineering diagnosis indicates is caused by a defect in a current unaltered release of the Licensed Program, IBM Customer Engineering will:

(1) if the Licensed Program is inoperable, apply a Program Temporary Fix (PTF) or make a reasonable attempt to develop an emergency bypass, and

(2) prepare an Authorised Program Analysis Report (APAR) and submit it to an IBM Central Programming Service location.

IBM Central Programming Service will respond to any problem caused by a defect in a current unaltered release of the Licensed Program by issuing a PTF to the originator of the APAR and/or by issuing corrected code or notice of estimated availability of corrected code. Corrections will be incorporated into new releases of the

Licensed Program which will be made available to the Customer by IBM. Any other programming services or assistance will be provided at a charge.

(ii) *Classification B*

When the Customer encounters a problem which his diagnosis indicates is caused by a Licensed Program defect, the Customer may submit an APAR to an IBM Central Programming Service location.

IBM Central Programming Service will respond to any problem caused by a defect in a current unaltered release of the Licensed Program by issuing a PTF to the originator of the APAR and/or issuing corrected code or notice of estimated availability of corrected code. Corrections will be incorporated into new releases of the Licensed Program which will be made available to the Customer by IBM.

On request, IBM Systems Engineering personnel will assist the Customer in (1) diagnosing defects and preparing APAR's for submission to an IBM Central Programming Service location, and (2) if the Licensed Program is inoperable, applying a PTF, or making a reasonable attempt to develop an emergency bypass pending the IBM Central Programming Service response to the APAR submitted. Any other programming services or assistance will be provided at a charge.

(iii) *Classification C*

Programming services or assistance provided by IBM under Classification C vary depending on (1) whether the Licensed Program is made initially available with a Programming Service Classification C or (2) whether the Licensed Program is made initially available with a Programming Service Classification A or B and then is reclassified to C.

For those Licensed Programs which are made initially available with a Programming Service Classification C, the Customer may submit documentation to the IBM Error Service Location designated on the relevant Supplement when he encounters a problem which his diagnosis indicates is caused by a Licensed Program error. This procedure may only be used for a specified number of months immediately following initial availability of each Licensed Program designated as the Support Period, ending as of the date specified in the relevant Supplement. For such documentation submitted during this period only, IBM through the designated Error Service Location will, without additional charge, respond to an error in the current unaltered release of the Licensed Program by issuing known error correction information to the Customer reporting the problem and/or issuing corrected code or notice of estimated availability of corrected code. Any on-site programming services or assistance will be provided at a charge.

For those Licensed Programs which are made available with a Programming Service Classification C, and which were previously classified as A or B, any programming assistance will be provided at a charge. IBM Central Programming Service will not be provided, except for corrections applicable to APAR's received prior to the date Classification C becomes effective for a Licensed Program previously assigned Classification A or Classification B.

(iv) *Classification CGP*

For those Licensed Programs which are made available under Classification CGP, IBM Systems Engineering personnel will provide programming assistance after initial delivery, during the specified Testing Period, without charge, to respond to a defect in the unaltered Licensed Program generated for the Customer by IBM, by issuing corrected code or notice of availability of corrected code. Any other programming assistance during the Testing Period will be provided at a charge. All programming services and assistance after the Testing Period will be provided at a charge.

(d) For Program Documentation shipped prior to shipment of the complete program, programming services or assistance will be provided at a charge; IBM Central Programming Service will not be provided.

(e) IBM will have the right to make additional charges for any additional effort required to provide programming services resulting from Customer use of other than a current unaltered release of the Licensed Program.

3. Patent and Copyright Indemnification

(a) IBM will defend at its expense any action brought against the Customer to the extent that it is based on a claim that any Licensed Program or Optional Material, USED within the scope of the Licence hereunder, infringes copyright in the United Kingdom, and IBM will pay any cost, damages and legal fees finally awarded against the Customer in such action which are attributable to such claim, provided that the Customer has notified IBM promptly in writing of such claim and allowed IBM to participate fully in the defence and/or provided that IBM has agreed to any settlement of such claim. Should any Licensed Program or Optional Material become, or in IBM's opinion be likely to become, the subject of a claim of infringement of copyright, IBM may at its option procure for the Customer the right to continue USING the Licensed Program or Optional Material, or replace or modify it to make it non-infringing. If neither of the foregoing alternatives is reasonably available to IBM, then IBM may discontinue the Licence for the Licensed Program and/or Optional Material upon one month's written notice to the Customer.

(b) With respect to any action brought against the Customer to the extent that it is based on a claim that any Licensed Program or Optional Material, USED within the scope of a Licence hereunder, infringes a patent of the United Kingdom, subject to the limitation of liability stated in the above Licence Agreement for IBM Program Products, IBM's sole obligation will be to pay any damages finally awarded against the Customer in such action which are attributable to such claim. Should any Licensed Program or Optional Material become, or in IBM's opinion be likely to become, the subject of a claim of infringement of a patent, IBM may at its option replace or modify it to make it non-infringing. If the foregoing is not reasonably available to IBM, then IBM may discontinue the Licence for the Licensed Program or Optional Material upon one month's written notice to the Customer. The Customer may notify IBM in writing during the one month after IBM's notice of discontinuance that the Customer elects to continue to be licensed to USE the Licensed Program or Optional Material until there has been an injunction or the claim has been withdrawn, and agrees to undertake at the Customer's expense the defence of any action against the Customer and to indemnify IBM with respect to all costs, damages, and legal fees attributable to such continued USE after such notice has been given to IBM; it being understood that IBM may participate at its expense in the defence of any action if such claim is against IBM. In any event, upon IBM's written notice of discontinuance to the Customer, a Licensed Program with Programming Service Classification A or B will be changed to Programming Service Classification C. IBM will not have any liability for such act of replacement, modification, discontinuance or reclassification.

(c) IBM will not have any liability with respect to any claim of copyright or patent infringement based on (1) USE of other than a current unaltered release of any Licensed Program and/or Optional Material available from IBM if such infringement would have been avoided by the USE of a current unaltered release of the Licensed Program and/or Optional Material available from IBM, or (2) USE or combination of any Licensed Program and/or Optional Material with non-IBM programs or data if such infringement would have been avoided by the absence of such USE or combination.

(d) The foregoing states the entire liability of IBM with respect to infringement of any copyright or patents by the Licensed Programs and/or Optional Materials or any parts thereof.

4. Responsibilities of the Parties

(a) IBM will make available upon request design objectives and estimated availability dates for each Licensed Program with Programming Service Classification A or B which it announces. However, IBM does not represent or warrant that such design objectives or estimated availability dates will be met.

(b) IBM will make available upon request Special Program Specifications for each Licensed Program with Programming Service Classification A or B.

(c) IBM will make available upon request a functional description for each Licensed Program with Programming Service Classification C, or CGP.

(d) The Customer will be exclusively responsible for the supervision,

management, and control of his USE of the Licensed Programs and/or Optional Materials, including but not limited to (1) assuring proper machine configuration, program installation, audit controls, and operating methods, (2) establishing adequate back-up plans, based on alternate procedures and/or based on access to qualified programming personnel to diagnose, patch, and repair Licensed Program defects, in the event of a Licensed Program malfunction, (3) implementing sufficient procedures and checkpoints to satisfy his requirements for security and accuracy of input and output, and (4) implementing sufficient procedures for restart and recovery in the event of a malfunction.

(c) The Customer agrees that he will take appropriate action by instruction, agreement and/or otherwise with his employees or other persons permitted access to Licensed Programs and/or Optional Materials to satisfy his obligations under this Agreement with respect to USE, copyright, modification, and protection and security of Licensed Programs and Optional Materials.

(f) Where program materials in relation to which rights are owned by a third party are to be copied or otherwise used in association with the

Licensed Program the Customer warrants that he has any necessary permission, express or otherwise, to enable the Customer to copy or otherwise use such program materials without infringing said rights.

If the Customer discloses such program materials to IBM or requests or permits IBM to copy or otherwise use them, the Customer warrants that he is entitled to make such disclosure or request or give such permission, and that he has any necessary consent, express or otherwise, to enable IBM to copy or otherwise use the program materials as so requested or permitted without infringing said third party rights.

5. Warranty

(a) Each Licensed Program with Programming Service Classification A or B will conform to its Special Program Specifications when it is shipped to the Customer. Sample data will be shipped with such Licensed Programs to enable the Customer to confirm that he has received a valid copy.

(b) Each Licensed Program with Programming Service Classification C or CGP and all related Optional Materials, and any programming assistance rendered during the Support Period or Testing Period, will be made available on an "as is" basis without warranty.

Accepted for and on behalf of (Name of Customer)

Accepted by
IBM United Kingdom Limited:

Authorised signature

Authorised signature

Title

Title

Date

Date

Data Processing Division
IBM United Kingdom Limited
P.O. Box 41, North Harbour, Portsmouth PO6 3AU

*Agreement for Sale of
IBM Data Processing
Machines*

Customer Name

(hereinafter called 'the Customer')

Customer No.

Branch Office No.

Address

Agreement No.

IBM United Kingdom Limited (hereinafter called "IBM") on acceptance of this Agreement by authorised signature agrees (1) to sell Machines to the Customer, (2) to provide Warranty Service for Machines and (3) to furnish Programming and Programming Services, all subject to the definitions, terms and conditions of this Agreement.

The Customer agrees to accept the Machines, Warranty Service, Programming and Programming Services under the terms and conditions of this Agreement.

"Machines" shall mean any machine, model upgrade or feature listed in the Schedule hereto and/or in the specification sheet(s) attached to and hereby forming part of this Agreement.

The Customer accepts responsibility for:

1. the selection of the Machines and Programming to achieve his intended results;
2. Management, supervision and the use of the Machines and Programming; and
3. the adequacy and accuracy of his source data, instructions, programs and procedures (including but not limited to those involving security, check points and audit controls) and the results obtained therefrom.

The Customer also has responsibility for the selection and use of and results obtained from any other equipment programs or services used with the Machines and Programming.

Terms and Conditions

1. Title

Title in each of the Machines is to remain vested in IBM until the full purchase price thereof and transportation and special handling or hoisting charges and any sums due to IBM under Clause 13 (Terms) will have been paid. Failure to pay the purchase price or the above mentioned charges for transportation handling and hoisting and taxes when due shall give IBM the right to take possession of the Machine with or without notice and without liability and, at its option, to avail itself of any other legal remedy.

2. Risk of Loss

During the period the Machines are in transit or in possession of the Customer up to and including the Date of Installation, IBM and its insurers, if any, relieve the Customer of responsibility for all risks of loss or damage to the Machines except loss or damage caused by nuclear reaction, nuclear radiation or radioactive contamination for which the Customer is legally liable. After the Date of Installation, the risk of loss or damage shall be on the Customer.

3. Delivery

Delivery will be made in accordance with IBM's delivery schedule. IBM reserves the right to update the delivery schedule as necessary in accordance with IBM's applicable shipment sequence. Prior to shipment IBM will make reasonable accommodation of a delay requested by the Customer.

4. Programming

- 4.1 The term "Programming" as used in this Agreement shall mean such programming as IBM may make generally available, from time to time, without separate charge, for machines of the types ordered by the Customer under this Agreement. IBM will furnish such Programming as may be requested by the Customer.
- 4.2 The term "Programming Services" shall mean such services as IBM may make generally available without separate charge in connection with Programming. IBM will determine the Programming Services available and their duration.

- 4.3 The terms "Programming" and "Programming Services" do not include programs and services that are available for a separate charge or which are offered under separate written agreements.

5. Installation

The Customer agrees to provide a suitable installation environment as specified in the applicable IBM installation manual and instructions and to furnish all labour required for unpacking and placing each Machine in the desired location. Packaging materials shall be the property of the Customer. Installation of Machines purchased under this Agreement shall be made in accordance with IBM's specifications. For all purposes of this Agreement the Date of Installation for a Machine will be the business day following the date that (i) the Machine is installed or (ii) the Machine is delivered to the Customer, if the Customer fails to provide a suitable installation environment or elects to delay installation. IBM will notify the Customer of the Date of Installation of each Machine.

6. Configuration Changes, Additional Features, Model Conversions

By agreement between IBM and the Customer, changes in the configuration of Machines may be made prior to the date of shipment. Additional features and model conversions which are field installable and generally available from IBM may be ordered by the Customer for installation in the Machines subject to IBM's then prevailing prices and terms and conditions.

7. Warranty

- 7.1 IBM warrants that each Machine will be in good working order on the Date of Installation and that it will conform to IBM's official published specifications at that date.
- 7.2 IBM further warrants that when shipped to the Customer Programming then designated by IBM for use with a Machine and for which Programming Services are then available will conform to IBM's official published specifications if properly used on the designated Machine. Thereafter, IBM will provide Programming Services subject to the provisions stated in the section entitled "Programming." IBM does not warrant that the functions contained in the Programming will operate in the combinations which may be selected for use by the Customer or that all Programming errors will be corrected. All Programming for which no Programming Services are available is distributed on an "as is" basis without warranty.
- 7.3 IBM does not warrant that the operation of any Machine or Programming will be uninterrupted or error-free.
- 7.4 Commencing on the Date of Installation, the following additional warranty provisions shall apply to the Machine described herein:-

7.4.1 Service and Parts Warranty

IBM will provide Warranty Services to keep in or restore to, good working order each Warranty Category A Machine for one year and each Warranty Category B, C or D Machine for three months at no additional charge to the Customer, except as set forth in the Sections entitled "Exclusions" and "Travel Charges". This Warranty Service includes scheduled preventive maintenance based upon the specific needs of individual Machines as determined by IBM and unscheduled, on-call remedial maintenance. Maintenance will include lubrication, adjustments, and replacement of maintenance parts deemed necessary by IBM. Maintenance parts will be furnished on an exchange basis, and the replaced parts become the property of IBM. Warranty Service provided under this Agreement does not ensure uninterrupted operation of the Machines. Engineering changes will be installed by IBM on Machines covered by this warranty unless the Customer elects, by written notice to

IBM, to have installed only those changes designated as mandatory by IBM.

IBM shall have full and free access to the Machines to provide service thereon. The Customer shall promptly inform IBM of any change in the Machine location during the warranty period. IBM service outside the scope of this warranty will be furnished at IBM's applicable time and material rates and terms then in effect, unless such service is otherwise covered by a separate written Agreement between IBM and the Customer.

7.4 II Parts Warranty

For one year, IBM warrants each Warranty Category B or C Machine (excluding vacuum tubes and solid state and other electronic devices which are warranted for three months) to be free from defects in material and manufacture. IBM's obligation is limited to furnishing on an exchange basis replacements for IBM parts, if any, which are found by IBM, upon inspection, to be defective, provided the Customer has promptly reported any Machine malfunction which is, in his opinion, attributable to defective parts. Maintenance parts will be furnished on an exchange basis, and the replaced parts become the property of IBM. No service will be furnished pursuant to this parts warranty.

7.4 III Additional Features and Model Conversions Warranty

Commencing on the date of installation of an additional feature or model conversion increment which is field installable, the following Warranties as described herein shall apply thereto:

- i a one-year Service and Parts Warranty if installed on a Warranty Category A Machine, or
- ii a three-month Service and Parts Warranty if installed on a Warranty Category B or D Machine, or
- iii a three-month Parts Warranty if installed on a Warranty Category C Machine.

In addition to the foregoing, such an additional feature or model conversion increment installed on a Warranty Category B or C Machine within one year of the date of installation of the Machine will have the unexpired Warranty if any, of such Machine.

7.4 IV Exclusions

The foregoing warranties do not include:

- a. Repair of damage or increase in service time resulting from failure continuously to provide a suitable installation environment with all facilities prescribed by the appropriate IBM installation manual (including but not limited to failure of or failure to provide adequate electrical power, air conditioning or humidity control).
- b. repair of damage or increase in service time attributable to the use of the Machines for other than data processing purposes for which designed;
- c. repair of the Machine and replacement of parts arising from the use of supplies where this results in abnormal wear, damage to a Machine or repetitive service calls.
- d. repair of damage or increase in service time caused by: accident; disaster, which shall include, but not be limited to, fire, flood, water, wind and lightning; transportation; neglect or misuse; Alterations which are defined as any change to a Machine which deviates from IBM's physical, mechanical or electrical machine design whether or not additional devices or parts are required; Attachments, which are defined as the mechanical, electrical or electronic interconnection with a Machine of non-IBM equipment or devices not supplied by IBM; or machines, except those IBM machines which are owned by IBM, under the Service and

Parts Warranty provision of an IBM Agreement for Sale or under an IBM Maintenance Agreement;

- e. repair of damage or increase in service time caused by maintenance service, or the conversion from one IBM model to another or the installation or removal of an IBM feature whenever any of the foregoing was performed by other than IBM.

This exclusion shall apply during the first three months subsequent to the date of any Machine modification;

- f. additional service time and replacement parts associated with the installation by IBM of an engineering change when such additional service and parts are required due to: maintenance service, the conversion from one IBM model to another or the installation or removal of an IBM feature whenever any of the foregoing was performed by other than IBM; Alterations or Attachments;
- g. furnishing supplies or accessories; painting or refinishing the Machines or furnishing material therefor; inspecting altered Machines, making specification changes or performing services connected with relocation of Machines; or adding or removing accessories, attachments or other devices;
- h. electrical work external to the Machines or maintenance of accessories, Alterations, Attachments, or other devices not furnished by IBM;
- i. such service which is impractical for IBM to render because of Alterations in or Attachments to the Machines; and
- j. providing any service or parts if the Machine is located outside the United Kingdom.

- 7.5 IBM shall not be responsible for failure to provide service or parts due to causes beyond its control or where the provision of such service would in the opinion of IBM involve a safety hazard.

8. Travel Charges

There will be no charge for travel time and expenses associated with Warranty Service or Programming Services under this Agreement except that actual travel time and expenses will be charged if Machines are installed in a place where IBM regularly has no personnel trained to provide Warranty Service for the Machines or to provide the Programming Services concerned.

9. Maintenance Service and Parts

IBM will, if requested, provide the Customer with maintenance service for the Machines, and the repair and replacement of parts as long as such service and parts are generally available on the basis of IBM's established prices terms and conditions prevailing at the time.

10. Engineering Changes

IBM will upon request supply to the Customer at IBM's established prices and on the terms and conditions prevailing at the time such engineering changes as IBM shall have available for sale and which may be suitable for use on and in connection with the Machines. However, IBM makes no representation that engineering changes which may be announced in the future will be suitable for use on or in connection with these Machines.

11. Patent and Copyright Indemnity

- 11.1 IBM will defend any claim brought against the Customer that any Machine or Programming furnished hereunder or that the operation of any such Machine under the control of any such Programming infringes a patent, a design registration or copyright in the United Kingdom. IBM will pay those costs and damages finally awarded against the Customer in any action based on any such claim provided that:

- (a) the Customer promptly notifies IBM in writing of any such claim, and

(b) IBM has sole control of the defence of any such claim and all related settlement negotiations.

If any such claim has occurred, or in IBM's opinion is likely to occur, the Customer agrees to permit IBM, at its option and expense, either to procure for the Customer the right to continue using the Machine or Programming or to modify the same so that it becomes non-infringing or to replace the same by a non-infringing machine or non-infringing Programming. If the foregoing alternatives are not reasonably available to IBM then the Customer agrees to return the Machine or Programming on written request from IBM. IBM agrees to grant the Customer a credit for any returned Machine as depreciated. The depreciation shall be an equal amount per year over the life of the Machine as established by IBM.

11.2 Notwithstanding the above IBM shall have no obligation to defend any claim brought against the Customer and no liability for any such claim, if such claim is based upon:

- (a) the combination, operation or use of any Machine or Programming furnished hereunder with equipment or data not supplied by IBM or with any program other than or in addition to the Programming furnished hereunder, if such claim would have been avoided by use of another program whether or not capable of achieving the same results; or
- (b) the alteration by or under the direction of the Customer of any Machine or Programming furnished hereunder; or
- (c) the use of other than the current unaltered release of any Programming furnished hereunder if such claim would have been avoided by the use of a current unaltered release of such Programming.

11.3 The foregoing states the entire obligation and liability of IBM with respect to infringement of patents, design registrations and copyright by any Machine or Programming furnished hereunder.

12. Limitation of Liability

12.0 IBM's entire liability and the Customer's exclusive remedies and the sequence of such remedies shall be as follows:

12.1 In the event of an alleged breach of this Agreement or other default by IBM which relates to the operation of a Machine or Programming furnished hereunder the Customer's remedies shall be: first, the repair or adjustment of the Machine or replacement of its parts found by IBM to be defective or correction of errors found in such Programming; second if after repeated efforts, IBM is unable to install the Machine in good working order or to restore the Machine to good working order or to make the Programming operate (all as warranted) the Customer may recover actual money damages subject to the limits provided below.

12.2 The Customer's remedies (whether in contract or in tort including negligence) against IBM for any breach of IBM's obligations hereunder or otherwise for any act, omission or statement of IBM, its employees, agents or sub-contractors in connection with or in relation to the subject-matter of this Agreement shall, subject to sub-section 12.4, be limited in respect of any one cause of loss or damage to actual money damages not exceeding

- (a) £750,000 in respect of physical damage to tangible property on the premises where the Machines are installed caused by negligence of IBM, its agents, employees or sub-contractors.
- (b) the greater of £75,000 or the Purchase Price in respect of any one cause of loss or damage other than a cause of loss or damage referred to under (a) above. The 'Purchase Price' shall be that applicable (ascertained at the time the cause occurred in accordance with the terms of Section 13 below) to the Machines in respect of which IBM is liable, and in the case of loss or damage arising from or relating to Programming or Programming Services, shall be confined to the price of those Machines which i) are directly related to the portions of the Programming in respect of which IBM is liable and ii) are rendered functionally inoperative by the Programming deficiency, provided that in no circumstances shall one Machine be included more than once in the calculation of the purchase price applicable to any one cause of loss or damage.

For the purposes of sub-sections 12.1 and this 12.2, this Agreement shall include any order accepted under this Agreement. Furthermore a number of causes, whether successive or concurrent, which together result in or contribute to substantially the same loss or damage shall be treated as one cause occurring at the date of the occurrence of the last of such causes.

12.3 Subject to sub-section 12.4, IBM will accept liability for direct physical injury to persons on the premises where the Machines are installed which is caused by the negligence of IBM or its employees, agents or sub-contractors, and the above money limits shall not apply. Furthermore such money limits shall not apply to cost and damage awards referred to in Section 11.

12.4 In no event will IBM be liable for any loss of profits, business or anticipated savings or for damages in respect of special indirect or consequential loss howsoever caused even if IBM has been advised of the possibility of such loss or damages. Furthermore IBM will not be liable in respect of any claim against the Customer by any other party (except as provided in Section 11 or with regard to personal injury claims arising under sub-section 12.3) or for any loss or damage caused by the Customer's failure to perform his responsibilities. Except as expressly set forth in this Agreement, all representations, conditions or warranties, express or implied, statutory or otherwise (including, but not limited to, any concerning the fitness of any Machine, or Programming for a particular purpose) are excluded.

12.5 No action (whether in contract or in tort, including negligence, and regardless of form including arbitration proceedings) arising out of the Agreement or in connection with the Machines, Programming, Programming Services, warranty or other services of any kind supplied or to be supplied hereunder may be brought by either party more than two years after the party concerned becomes aware or should reasonably have become aware of the facts constituting the cause of action.

12.6 In consideration of IBM entering into this Agreement it is further agreed:

- (a) that the limitation stated in the preceding sub-sections shall, with the substitution of £100,000 for £75,000 and of 125% of the Purchase Price for the Purchase Price in sub-section 12.2 (b), apply in respect of the damages recoverable by the Customer in respect of a fundamental breach or breach of a fundamental term of this Agreement whether or not such breach results in the termination of this Agreement, and
- (b) that this sub-section 12.6 shall constitute a separate collateral agreement between the parties which shall survive the termination of the remainder of this Agreement by reason of any such fundamental breach or breach of a fundamental term or by a repudiation or otherwise.

13. Terms

- a. Payment in full for each Machine shall be due on the Date of Installation.
- b. The prices listed in the Schedule to this Agreement shall not be increased nor shall any deduction be made from such prices for any reason whatsoever except as expressly provided in this Agreement.
- c. If IBM gives notice of a price reduction for any Machine on or before the Date of Installation, the price of such Machine shall be decreased accordingly.
- d. If, on the date of notice of a price increase more than six months remains prior to the date of shipment scheduled by IBM for such Machine at the time of such notice, the price of such Machine shall be increased as specified in the notice.
- e. Following notification of any such increase under d. above the Customer may cancel this Agreement either in toto or in respect of any Machine for which the price is increased by giving written notice to IBM served within forty five (45) days of IBM's notification of a price increase.

f. The prices listed in the Schedule are ex-IBM's United Kingdom factories or warehouses. All costs of transportation to the Customer's premises and costs of special handling or hoisting will be paid by the Customer.

g. The Customer agrees to pay amounts equal to any taxes (including Value Added Tax), paid or payable by IBM charged on the sale of Machines or supply of services under this Agreement or on the Agreement, excluding however taxes assessed upon profits.

14. General

14.1 The Customer shall not assign or otherwise transfer all or any part of this Agreement without the prior written consent of IBM. Any such attempted assignment or transfer by the Customer without IBM's written consent is void.

14.2 This Agreement can only be modified by a written agreement duly signed by persons authorised to sign agreements on behalf of the Customer and of IBM, and variance from the terms and conditions of this Agreement in any Customer order or other written notification will

be of no effect. The term "this Agreement" as used herein includes any applicable schedule, or future written amendment made in accordance herewith.

14.3 For the purposes of this Agreement, any day from Monday to Friday inclusive other than a public holiday shall constitute a "business day".

14.4 If any provisions, or portions thereof, of this Agreement are held to be invalid under any applicable statute or rule of law, they are to that extent to be deemed omitted.

14.5 All disputes arising out of or relating to this Agreement shall be referred to the arbitration of two persons (one to be appointed by IBM and one by the Customer) or their Umpire in accordance with the provisions of the Arbitration Act 1950 (or any statutory amendment or re-enactment thereof).

14.6 This Agreement shall be governed by the Laws of England.

14.7 The Customer agrees that this Agreement is the complete and exclusive statement of the agreement between the parties, which supersedes all proposals or prior agreements oral or written, and all other communications between the parties relating to the subject matter of this Agreement.

Signed for and on behalf of
(Name of Customer)

Signed for and on behalf of
IBM United Kingdom Limited

by

by

Authorised signature

Authorised signature

Title

Title

Date

Date

AMENDMENT TO AGREEMENT FOR SALE OF IBM DATA PROCESSING MACHINES

CUSTOMER REMEDIES

For orders accepted by IBM on or after 1 February 1978, the terms and conditions of the above Agreement shall be amended by the deletion of Sections 11 and 12 and the substitution of the following Sections 11 (Patent and Copyright Indemnity) and 12 (Customer Remedies):

SECTION 11 - PATENT AND COPYRIGHT INDEMNITY

11.1 IBM will defend any claim brought against the Customer that any Machine sold or Programming furnished hereunder or that the operation of any such Machine under the control of any such Programming infringes a patent, a design registration or copyright in the United Kingdom.

The Customer agrees to notify IBM promptly in writing of any such claim and to permit IBM to have control of the defence of any such claim and all related settlement negotiations.

IBM will pay those costs and damages finally awarded against the Customer in any action based on any such claim, whether or not defended by IBM.

11.2 If any such claim as is mentioned in Section 11.1 occurs, or in IBM's opinion is likely to occur, the Customer agrees to permit IBM then, at its option and expense, either to procure for the Customer the right to continue using the Machine or Programming or to modify the same so that it becomes non-infringing or to replace the same by a non-infringing machine or non-infringing Programming.

11.3 If in the circumstances described in Section 11.2 the alternatives set out in that Section are not available on terms which are reasonable in IBM's judgement the Customer agrees that IBM shall then have the option, exercisable by a request in writing made to the Customer, to re-purchase the Machine and/or to require the return of the Programming. The purchase price of the Machine payable by IBM to the Customer shall be the price paid for the Machine by the Customer to IBM less depreciation. The depreciation shall be an equal amount per year over IBM's established period of depreciation for that Machine current at the time of signature of this Agreement.

11.4 A Notwithstanding the provisions of Sections 11.1, 11.2 and 11.3 IBM shall have no obligation to defend any such claim as is mentioned in Section 11.1 and no liability for any such claim if such claim arises from

(a) the combination, operation or use of any Machine sold or Programming furnished hereunder with equipment or data not supplied by IBM, or

(b) the combination, operation or use of any Machine sold or Programming furnished hereunder with any program other than or in addition to the Programming furnished hereunder and if such claim would have been avoided by use of another program whether or not capable of achieving the same results, or

(c) the alteration by or under the direction of the Customer of any Machine sold or Programming furnished hereunder.

11.4 B Further notwithstanding the provisions of Sections 11.1, 11.2 and 11.3 IBM shall have no obligation to defend any claim brought against the Customer that any Programming furnished hereunder infringes a patent or copyright in the United Kingdom, and no liability for any such claim, if such claim arises from the use of other than the current unaltered release of any Programming and if such claim would have been avoided by the use of such current unaltered release.

- 11.5 Notwithstanding anything contained in this Section 11, IBM's liability for any loss or damage sustained by the Customer by reason of the infringement of a patent or copyright in the United Kingdom by any Programming furnished hereunder shall in all circumstances be subject to Sections 12.6 and 12.7 of this Agreement.

SECTION 12 - CUSTOMER REMEDIES

12.1 Exclusive Remedies

IBM's entire liability and the Customer's sole remedies in respect of any "Default" shall be as set out in this Section 12.

"Default" shall mean any breach of IBM's obligations hereunder or any fundamental breach or breach of a fundamental term of this Agreement or any default, act, omission or statement of IBM, its employees, agents or sub-contractors in connection with or in relation to the subject matter of this Agreement and in respect of which IBM is legally liable to the Customer.

This Section 12 shall not confer rights or remedies on the Customer to which he would not otherwise be legally entitled.

12.2 Statutory Liability

IBM does not exclude liability for death or personal injury to the extent that it results from the negligence of IBM, its employees, agents or sub-contractors, and accepts liability for any breach on the part of IBM of any undertaking as to title, quiet possession and freedom from encumbrance which may be implied by Section 12 of the Sale of Goods Act 1893.

12.3 Property Damage

Subject to Section 12.7 IBM does not exclude liability for direct physical damage to tangible property of the Customer to the extent that it is caused by the negligence of IBM its employees, agents or sub-contractors.

12.4 Damages Remedy

The Customer's remedies (whether in contract or in tort including negligence) against IBM for any Default shall be limited to damages. Such damages shall be subject to the limitations by amount and type specified in this Section 12. For the purpose of this Section 12, this Agreement shall include any order accepted under this Agreement.

12.5 Specific Remedies

In respect of any Default relating to a Machine delivered hereunder and occurring prior to the end of its Warranty Period, or to Warranty Service, Programming or Programming Services furnished hereunder, IBM's liability for damages shall be limited as follows:

- 12.5.1 IBM shall always be afforded reasonable opportunity to correct any deficiency in the Machine or Programming before being in breach of its obligations under this Agreement. If in the event of a Default, the Customer thereafter incurs Expenses (as defined below) the Customer may recover from IBM damages equal to the amount of those Expenses.

- 12.5.2 a) The Customer shall permit IBM to take all reasonable measures to install the Machine in or restore it to good working order and to make the Programming operate (all as warranted), and at the option of IBM to substitute or add to the Machine or Programming and to take such other measures as may be necessary in each case to correct a Default. b) If after repeated efforts IBM fails to correct the Default and the Default is material (and in the case of a Programming deficiency, a Machine initially installed with that Programming is thereby rendered functionally inoperative) and the Customer has as a result ceased permanently to use the affected Machine, the Customer may, in addition to damages for Expenses as provided in Section 12.5.1 recover from IBM damages equal to Set Up Costs (as defined below) and other damages not exceeding the Purchase Price (as defined below).

12.5.3 "Expenses" shall mean such costs actually incurred by the Customer as are in excess of the costs that would have otherwise been incurred by him in the absence of any Default provided that such costs are directly caused by the Default and are reasonably and necessarily incurred by the Customer in using the Machine or the Programming or other data processing services or machines used in substitution for or in addition to the Machine or Programming.

"Set Up Costs" shall mean that part of the specific costs of normal preparations for the installation and use of a Machine which have been actually incurred by the Customer and which were reasonably and necessarily incurred by him after signature by IBM of the Agreement provided that such costs are directly related to a Machine in respect of which IBM is liable and which the Customer has ceased permanently to use, together with costs of transportation, handling and hoisting paid by the Customer in respect of such Machine.

The "Purchase Price" shall be that invoiced to the Customer (or, in the event that the Machine has not yet been invoiced to the Customer, the price which would be payable by the Customer in accordance with the terms of Section 13) for the Machines in respect of which IBM is liable, and in the case of loss or damage arising from or related to Programming or Programming Services shall be confined to the price of those Machines which i) are directly related to the portions of the Programming in respect of which IBM is liable, and ii) are rendered functionally inoperative by the Programming deficiency, provided that in no circumstances shall one Machine be included more than once in the calculation of the purchase price applicable to any one Default.

12.5.4 IBM shall not be liable for i) Expenses to the extent that IBM affords the Customer a reasonable opportunity to reduce those Expenses by using alternative machines, Programming or Services. ii) Set Up Costs, to the extent that the preparations referred to in 12.5.3 are of use for alternative equipment.

12.5.5 IBM shall not be liable for any Expenses incurred under Sections 12.5.1 or 12.5.2 after the date:

i) on which IBM corrects the Default as provided in Section 12.5.2(a);

ii) twelve months after the date on which IBM became liable for the Default;

whichever shall first occur.

12.5.6 IBM shall in no circumstances be liable for Set Up Costs unless the Default occurs before the end of the Warranty Period of the affected Machine.

12.5.7 IBM's liability under this Section 12.5 shall be subject to the limitations in this Section 12.

12.6 Monetary Limits Of Damages

IBM's total liability in respect of any one Default shall not exceed the greater of \$75,000 or 125 per cent of the Purchase Price as defined above.

A number of Defaults, whether successive or concurrent, which together result in or contribute to substantially the same loss or damage shall be treated as one Default which for the purpose of determining the Purchase Price shall be deemed to occur at the date of the occurrence of the last of such Defaults.

The monetary limits set out above shall not apply to any liability on the part of IBM referred to in Sections 12.2 and 12.3 above nor to cost and damages awards referred to in Section 11.1.

12.7 Type Of Damages Liability

Except as provided in Section 12.2 in no event shall IBM be liable for the following loss or damage howsoever caused and even if foreseeable by or in the contemplation of IBM:

1. Economic loss which shall include loss of profits, business, revenue, goodwill and anticipated savings.
2. Damages in respect of special, indirect or consequential loss or damage (other than Expenses, Set Up Costs, or direct physical damage to tangible property of the Customer caused by the negligence of IBM its employees, agents or sub-contractors).
3. Any claim made against the Customer by any other party (save as expressly provided in Section 11.1).

12.8 Time Limit For Actions

Except in respect of the liability of IBM referred to in Section 12.2 no action (whether in contract or in tort, including negligence, and regardless of form including arbitration proceedings) arising out of the Agreement or in connection with the Machines, Programming, Programming Services, warranty or other services of any kind supplied or to be supplied hereunder may be brought by either party more than two years after party concerned becomes aware or should reasonably have become aware of the facts constituting the cause of action.

12.9 Exclusions

The Machines and Programming have been produced to standard IBM specifications and it is therefore for the Customer to implement his application of the Machines and Programming together with other programs he selects in combination to meet his specific requirements.

The Machines and Programming cannot be tested in every possible combination and operating environment. IBM is unable to represent that their operation will be uninterrupted or error-free. The continuing management and operation of the Machines and Programming together with other programs in combination and any changes thereto are under the control of the Customer. Accordingly the Customer accepts that it is reasonable for IBM to limit its liability under this Agreement and the Customer further agrees that except as expressly set forth in this Agreement, all conditions or warranties, express or implied, statutory or otherwise (including, but not limited to any concerning the fitness of any Machine, Programming or Programming Services for a particular purpose) are hereby excluded. This Section 12.9 shall not exclude the undertakings implied by Section 12 of the Sale of Goods Act 1893.

IBM shall not be liable for any loss or damage caused by the Customer's failure to fulfil his responsibilities under this Agreement or arising from any matter under the control of the Customer.

12.10 Application Of This Section 12

The parties expressly agree that should any limitation or provision contained in the Section 12 be held to be invalid under any applicable statute or rule of law it shall to that extent be deemed omitted but if IBM thereby becomes liable for loss or damage which would otherwise have been excluded such liability shall be subject to the other limitations and provisions set out above.

Data Processing Division
IBM United Kingdom Limited
P.O. Box 41, North Harbour, Portsmouth PO6 3AU

Name of Customer

Agreement No.

Machines supplied under this Agreement will at IBM's discretion either be newly manufactured or will have been re-assembled or reconditioned at an IBM plant from serviceable new and used parts and will have been thoroughly inspected and tested for good working order. Newly manufactured Machines may contain some used parts which are warranted equivalent to new when used in the Machines. All Machines at the date of installation will conform to IBM's official published specifications.

[illegible]

*Subject to installation charge.

[†]The model and specifications of the Machines may be changed by agreement between IBM

Total £

D2: GSD CONTRACTS

- Agreement for IBM Licensed Programs
- Agreement for IBM Systems Engineering Services
- Agreement for Sale of IBM Machines
- Agreement for Lease or Rental of IBM Machines
- Composite Signature Agreement

General Systems Division
IBM United Kingdom Limited
PO Box 41, North Harbour, Portsmouth PO6 3AU

Customer Name

(hereinafter called "the Customer")

Address

Customer No.

Branch Office No.

Agreement No.

Programs

IBM United Kingdom Limited (hereinafter called IBM) by signature of this Agreement at its Head Office agrees to furnish and the Customer agrees to accept non-transferable and non-exclusive Licences in the United Kingdom for Licensed Program Material subject to the terms and conditions of this Agreement. Such Licences shall be effective when a Supplement to Agreement for IBM Licensed Programs (hereinafter referred to as the Supplement) for each Licensed Program or Licensed Program Material is signed by IBM. Any terms and conditions which this Agreement states are to be specified by IBM for a Licensed Program and/or related Licensed Optional Material, will be designated in the applicable Supplement. IBM will:

- (a) furnish such Licensed Programs to the Customer
- (b) furnish Licensed Optional Materials in support of such Licensed Programs
- (c) grant to the Customer non-transferable and non-exclusive Licences to use the Licensed Program Material (as defined below) and,
- (d) provide Program Services, all as described herein.

The Customer agrees with respect to the Licensed Program Material to accept the responsibility for its selection to achieve the Customer's intended results, its installation, its use, and except as otherwise provided hereunder, the results obtained therefrom.

The Customer also has the responsibility for the selection, installation and use of, and results obtained from, any other programs or programming, equipment, or services used with the Licensed Program Material.

TERMS AND CONDITIONS

1. Definitions

- 1.1 The term "Licensed Program" in this Agreement shall mean a licensed data processing program consisting of a series of instructions or statements in machine readable form and any related licensed machine readable or printed Material such as, but not limited to, flow charts, logic diagrams and listings provided for use in connection with the licensed data processing program.
- 1.2 The term "Licensed Optional Material" in this Agreement shall mean any machine readable or printed material not included in the Licensed Program and which is designated by IBM as available under licence to Customers who have a Licence for the Licensed Program to which such optional material relates.
- 1.3 The term "Licensed Program Material" in this Agreement shall mean both the Licensed Program and the Licensed Optional Material as defined above.
- 1.4 The term "USE" in this Agreement shall mean copying any portion of the Licensed Program Material into a machine and/or transmitting it to a machine, for processing of the machine instructions or statements contained in such material.
- 1.5 For the purpose of this Agreement "Available" Licensed Program Material shall mean that Material which is included in the IBM Program Library from time to time.

2. Term

- 2.1 This Agreement shall become effective upon signature by both parties and will remain in effect until terminated by the Customer upon one month's written notice, or by IBM as set forth in this clause. This Agreement may be terminated by the Customer only when all Licences hereunder are discontinued and all Licensed Program Material has been returned or destroyed.
- 2.2 Licences granted under this Agreement for which monthly charges have commenced may be discontinued by the Customer on one month's written notice. Otherwise any Licence may be discontinued by the Customer at any time upon written notice effective immediately.
- 2.3 Notice of discontinuance of all Licences shall not be considered notice of termination of this Agreement unless specifically stated.
- 2.4 IBM may discontinue any Licence or terminate this Agreement upon written notice if the Customer fails to comply with any of the terms and conditions of this Agreement, or as provided in the clause entitled "Patent and Copyright Indemnity."

- 2.5 Notice of discontinuance of any Licence for a Licensed Program shall be notice of discontinuance of all Licensed Optional Material obtained in connection therewith.

3. Licence

3.1 General

Each Licence granted under this Agreement authorizes the Customer to:

- (a) USE the Licensed Program Material in machine readable form on the machine or machines (hereinafter referred to as "Machine") designated in an applicable Supplement for such Licensed Program Material, and in conjunction therewith to store the Licensed Program Material in, transmit it through or display it on units associated with such designated machine;
- (b) utilize the Licensed Program Materials in printed form in support of the USE of such materials in machine readable form. Licensed Program Material provided by IBM in printed form may not be copied. Additional copies of such printed Material may be obtained under Licence from IBM at the charges then in effect.
- (c) copy Licensed Program Material in machine readable form into any machine readable or printed form to provide sufficient copies to support the Customer's USE of the Licensed Program Materials as authorized under this Agreement.

A separate Licence is required for each Machine on which Licensed Program Material will be USED, except as provided in the clauses entitled, "Temporary Licence Transfer," "Installation Licence," and "Location Licence."

No right to USE print, copy, translate, adapt, record, transmit or display the Licensed Program Material, in whole or in part, is granted hereby except as expressly provided in this Agreement.

3.2 Temporary Licence Transfer

The Customer is authorized to transfer the Licence granted hereunder to and to USE the Licensed Program Material on:

- (a) a backup machine during the time when the designated Machine or an associated unit required for USE of the Licensed Program Material is temporarily inoperable and until the designated Machine shall be restored to operation and processing on the backup machine is completed; or
- (b) another machine for assembly or compilation of the Licensed Program Material if the designated Machine and its associated units do not provide the configuration required for assembly or compilation.

3.3 Installation Licence

When IBM specifies "Installation Licence Applies" the Licence for the Licensed Program Material granted hereunder shall be extended to any other machine in the same installation as the designated Machine. For the purposes of this Agreement "same installation" shall mean a single room or contiguous rooms unless otherwise agreed to in writing by IBM.

3.4 Location Licence

When IBM specifies "Location Licence Applies" the Licence for the Licensed Program Material granted hereunder shall be extended to any other machine in the same location as the designated Machine. For purposes of this Agreement "same location" shall mean a single physical Customer location, designated by a single mailing address and contained within a single building unless otherwise agreed to in writing by IBM.

3.5 Change in Designated Machine

The Customer may notify IBM of his intention to change the designated Machine on which the USE of the Licensed Program Material is authorised. The change of designated Machine will be effective upon the date set forth in the form entitled Confirmation of Change in Designated Machine furnished to the Customer by IBM.

3.6 Additional Licences

Each additional Licence for Licensed Program and/or Licensed Optional Material already licensed for USE by the Customer under this Agreement requires a Supplement signed by IBM. After such additional Supplement has been signed, the Customer may upon notice to IBM, in lieu of distribution of an additional copy of the Licensed Program Material from IBM, copy that Licensed Pro-

gram Material previously distributed to that Customer by IBM in machine readable form. The testing period, if any, for such additional Licence will commence on the effective date for the additional Licence designated in the Supplement.

Licensed Program Material provided by IBM in printed form may not be copied in connection with any additional Licence or otherwise.

4. Charges

The charges applicable to each Licence for a Licensed Program or Licensed Optional Material will be specified in the appropriate Supplement and will consist of monthly charges (or a one-time charge in lieu thereof) and any initial charge and/or process charge. Monthly charges will continue until the Licence for the Licensed Program Material is discontinued. However, for certain Licensed Program Material IBM may specify a payment period of consecutive months after which further monthly charges are waived.

4.1 Commencement and Invoicing of Charges

4.1.1 Monthly charges will commence on the business day following the end of the testing period, or 10 days after shipment of the Licensed Program Material by IBM if there is no testing period, except as set forth below. Charges for a partial month's use will be prorated on the number of days in the month. Monthly charges will be invoiced in advance. Payment will be made within thirty days after the date of invoice.

4.1.2 Except as set forth below, one-time charges, and initial charges will be due and payable on the business day following the end of the testing period, or 10 days after shipment of the Licensed Program Material by IBM if there is no testing period.

4.1.3 For additional Licences for which the Customer has elected to make copies pursuant to the clause entitled "Additional Licences" and for which there is no testing period, monthly charges will commence and other applicable charges will be due and payable upon the effective date for additional Licences designated in the Supplement. For the purpose of Clause 4.3 references to the "estimated shipment date" shall be construed to include such effective date.

4.1.4 Process charges, and charges for early shipment of Licensed Program Material in printed form will be due and payable upon receipt by the Customer of the Licensed Program Material to which such charges apply whether or not the Customer discontinues the Licence prior to or during the testing period. Such charges are not refundable.

4.2 Applicable Taxes

There shall be added to any charges under this Agreement amounts equal to any taxes and import or other duties, or amounts in lieu thereof, however designated, levied or based on such charges or on this Agreement or the Licensed Programs or Optional Materials or their use, or the program storage media, excluding, however, taxes assessed upon profits or gains.

4.3 Price Changes

4.3.1 Monthly charges are subject to change by IBM upon three months' written notice to the Customer.

4.3.2 One-time, process and initial charges are subject to change without notice except that for Licensed Program Material for which a Supplement has been signed by IBM,

(a) the process charge will not be increased during the three months prior to and including the applicable shipment date estimated by IBM in accordance with Clause 5 and

(b) one-time charges and initial charges will not be increased on or after such applicable estimated shipment date.

In the event the Customer requests a later shipment date, such later date will be deemed to be the shipment date for the purpose of determining when such price changes apply.

4.3.3 Monthly, initial and process charges payable in respect of early shipment of Licensed Program Material in printed form shall be those prevailing at the time of such early shipment in accordance with Clauses 4.3.1 and 4.3.2.

4.3.4 If charges for Licensed Program Material are increased under Clauses 4.3.1, 4.3.2 and 4.3.3 for any such Licensed Program Material, the Customer may discontinue the affected Licence in accordance with the provisions of this Agreement, otherwise the new charge will become effective. Discontinuance of a Licence hereunder shall not

relieve the Customer of any obligation to pay charges which became due and payable prior to the date of such discontinuance.

5. Shipment

5.1 The estimated shipment date for Licensed Program Materials will be specified by IBM. However, IBM does not represent or warrant that such shipment or delivery dates will be met.

5.2 IBM will notify the Customer of the type of program storage media required for shipment. Unless returnable or disposable media is used, the program storage media must be provided by the Customer ordered from IBM at the applicable charge. Except when otherwise specified by IBM, Licensed Program Material will be shipped to the Customer without shipping charge. Any special shipment requested by the Customer will be at Customer expense.

6. Licensed Program Testing

6.1 For each Licensed Program IBM will specify in the Supplement the testing period, if any, during which the Licensed Program will be made available for non-productive USE. The purpose of the testing period is to permit the Customer to determine whether the functions of the Licensed Program selected by the Customer operate together to assist the Customer in determining whether the Licensed Program meets the Customer's requirements. The testing period will begin a specified number of days after shipment of the Licensed Program by IBM, unless otherwise specified.

6.2 The Customer may discontinue the Licensed Program upon written notice, effective immediately, at any time during the testing period. If such notice is given, no monthly charges, one-time charges, initial charges or Licensed Optional Material charges will be due. However, process charges and charges for early shipment of Licensed Program Material will be payable and will not be refunded. Unless such notice of discontinuance is given, the Customer will be deemed at the end of the testing period to have decided to retain the Licensed Program under the provisions of this Agreement.

6.3 In the event that the Licensed Program is used for productive purposes during the testing period, the testing period will be deemed to have ended as of the date upon which the Customer commences productive USE.

6.4 Subsequent releases, if any, of a Licensed Program which have the same program number will be made available to the Customer for productive USE and/or test on the designated Machine while the Customer continues productive USE of the previous release on that Machine and pays applicable charges therefor. The Customer has the right to decide whether to install any such subsequent releases and to continue USE of a previous release having given due regard to the provisions of the clauses entitled "Program Services" and "Patent and Copyright Indemnity."

6.5 In the event of discontinuance of a Licence and subsequent reordering of a Licence for the same Licensed Program Material for the same installation (or location, when IBM has specified "Location Licences Applies"), there will be no testing period for the subsequent Licence.

7. Risk of Loss

7.1 If Licensed Program Material is lost or damaged during shipment from IBM, IBM will replace such Licensed Program Material and will provide equivalent program storage media at no additional charge to the Customer.

7.2 If Licensed Program Material is lost or damaged while in possession of the Customer, IBM will replace such Licensed Program Material at the then applicable IBM charges, if any, for processing, distribution, and/or program storage media.

8. Early Shipment of Printed Licensed Materials

8.1 When IBM has signed a Supplement for Available Licensed Program Material for which there is a monthly charge, Licensed Program Material which is to be provided by IBM in printed form can, upon Customer request, be shipped to the Customer up to six months prior to shipment of the machine readable portion of the Licensed Program Material. Licensed Program Material, provided by IBM in printed form, may not be copied in any form for any purpose.

8.2 If the Customer does not request that the machine readable portion of the Licensed Program Material be shipped within six months

following the date of shipment of the printed material, the Customer will be deemed to have discontinued the Licence for the Licensed Program Material and shall return or destroy the printed material. If after discontinuance the Customer subsequently re-orders the same Licensed Program Material for the same installation (or location, when IBM has specified "Location Licence Applies"), such Licensed Program Material in printed form will not be made available prior to shipment of the machine readable portion of the Licensed Program.

8.3 The charges for early shipment of Licensed Program Material will consist of a charge equal to one monthly charge for the Licensed Program Material together with any applicable initial and/or process charge. Payment of this charge will be credited to the first month's invoice for the Licensed Program.

8.4 Program Services, if any, for the Licensed Program will not be provided prior to shipment of the machine readable portion of the Licensed Program.

9. Program Services

For each Licensed Program IBM will specify the types and periods of Program Services, if any, to be provided without additional charge for a current release of the Licensed Program. Program Services will commence at the beginning of the Licensed Program testing period or, if there is no testing period for that Licence, when charges (other than charges for early shipment of Licensed Program Material in printed form) commence. Program Services will be subject to the provisions of the clause entitled "Specified Operating Environment."

9.1 Types of Program Service

9.1.1 Central Service - When Central Service is specified, IBM will provide one or more service locations which will accept documentation, in a format prescribed by IBM, indicating that a problem is caused by a defect in the Licensed Program. IBM will respond to a defect in a current unaltered release of the Licensed Program by issuing: defect correction information such as correction documentation, corrected code, or notice of availability of corrected code; or a restriction or a by-pass. Unless Local Service is also specified for the Licensed Program, the Customer will be responsible for the preparation and submission of documentation to the Central Service.

9.1.2 Local Service - When Local Service is specified and a problem occurs which the Customer determines is caused by the use of a Licensed Program and the diagnosis of the local IBM representative indicates that the problem is caused by a defect in the unaltered portion of a current release of a Licensed Program, the local IBM representative will perform the following problem resolution activities:

- (a) attempt to correct or by-pass the defect by providing the Customer with correction information issued by the Central Service, if available; or
- (b) submit documentation to the Central Service, if specified as available; and, in any event,
- (c) if the Licensed Program is inoperable, make a reasonable attempt to resolve the problem by applying a local fix or providing a by-pass.

9.1.3 Local Assistance - When Local Assistance is specified and the Customer encounters a problem, which the Customer's diagnosis indicates is caused by a defect in a current unaltered release of the Licensed Program, the Customer may request IBM assistance in resolving the problem. Such assistance, if requested, will be provided by a local IBM representative but may be subject to the availability of personnel. This assistance may include, but not extend beyond, the following problem resolution activities:

- (a) attempting to correct or by-pass the defect by providing the Customer with correction information issued by the Central Service, if available, or
- (b) assisting the Customer with preparing documentation for submission to the Central Service, if specified as available, and, in any event,
- (c) if the Licensed Program is inoperable, making a reasonable attempt to resolve the problem by assisting the Customer in applying a local fix or providing a by-pass.

9.2 Program Services Period

Each type of Program Service provided will be specified as available:
(a) until discontinued by IBM upon six months' written notice;

or

- (b) until a designated calendar date; or
- (c) for a designated number of months for each Licence. In the event the Customer discontinues a Licence for a Licensed Program and subsequently re-orders the same Licensed Program for the same installation (or location, when IBM has specified "Location Licence Applies"), the service period then in effect will be reduced by the number of months for which such Service was previously available.

For any Licensed Program, IBM shall have the right to charge for any of the foregoing Program Services to the extent they are not specified as provided without additional charge.

Other types of Program services may be specified by IBM and designated in the Supplement for a Licensed Program.

IBM shall also have the right to charge for any additional effort which results from providing Program Services for an altered Licensed Program or a release which is not current.

IBM does not guarantee service results or represent or warrant that all errors or program defects will be corrected.

10. Permission to Modify

The Customer may modify any Licensed Program Material in machine readable form and/or merge such material into other program material to form an updated work for the Customer's own use; provided that, upon discontinuance of the Licensed Program, the Licensed Program Material will be completely removed from the updated work and dealt with under this Agreement as if permission to modify or merge had never been granted. Any Licensed Program Material included in an updated work will continue to be subject to all terms of this Agreement.

11. Protection and Security of Licensed Program Materials

11.1 The Customer will take appropriate action, by instruction, agreement and/or otherwise, with any persons permitted access to Licensed Program Material so as to enable the Customer to satisfy the Customer's obligations under this Agreement.

11.2 All copies of Licensed Program Material made by the Customer including translations, compilations, and partial copies within modifications and updated works are the property of IBM. The Customer will reproduce and include the copyright notice on any such copies in accordance with the copyright instructions provided by IBM.

11.3 The Customer will maintain records of the number and location of all copies of Licensed Program Material and will notify IBM in writing if the original or any copy of the Licensed Program Material will be kept at an installation (or location when IBM has specified "Location Licence Applies") other than that of the Machine designated in the applicable Supplement.

11.4 The Customer will ensure, to the best of his ability at the time of disposing of any media, that any Licensed Program Material contained thereon has been erased or otherwise destroyed.

11.5 The Customer will not disclose, provide or otherwise make available any Licensed Program Material in any form without IBM's prior written consent except to employees of the Customer or IBM employees or other persons during the period when they are on the Customer's premises for purposes specifically related to the Customer's use of the Licensed Program Material.

12. Licensed Program Specifications

For each Licensed Program which is warranted IBM will publish, at the time that the Licensed Program becomes Available, a document entitled "Licensed Program Specifications." Such Licensed Program Specifications may be updated by IBM and such updates may constitute a change in specifications.

13. Warranty

Each Licensed Program which is designated in the Supplement as warranted will conform to its Licensed Program Specifications prevailing when shipped to the Customer, if properly used in a Specified Operating Environment. Thereafter, IBM will provide program services as described in the clause entitled "Program Services."

- 13.2 IBM does not warrant that the functions contained in a Licensed Program will meet the Customer's requirements or will operate in the combinations which may be selected for use by the Customer, or that the operation of the Licensed Program will be uninterrupted or error free or that all errors or program defects will be corrected.
- 13.3 All Licensed Program Material which is not designated in the Supplement as warranted will be distributed on an "As Is" basis without warranty of any kind either express or implied.

14. Specified Operating Environment

- 14.1 Each Licensed Program is designed to operate on one or more IBM Machines and, in most instances, in conjunction with other IBM equipment and programs. The Licensed Program Specifications for each warranted Licensed Program will define the environment in which the Licensed Program is designed to operate. For Licensed Programs distributed on an "As Is" basis, the Specified Operating Environment will be stated in a Notice of Availability of the Licensed Program.
- 14.2 Program Services for a Licensed Program used in other than a Specified Operating Environment are subject to limitations occasioned by the differences between the Specified Operating Environment and the Customer's operating environment and by the extent of the local IBM representative's knowledge of the Customer's equipment and programs. Such Program Services will be subject to the following conditions:
- (a) when performing Local Service or Local Assistance IBM's obligation is limited to having the local IBM representative apply a reasonable effort to provide Program Services as described in the applicable portion of the clause entitled "Program Services." Furthermore, the local IBM representative will not be expected to operate a machine designated in the Supplement unless it was supplied or manufactured by IBM. IBM will have the right to make additional charges for any additional effort required to perform these Program Services.
 - (b) Central Service will only respond to defects which occur when the Customer operates the Licensed Program in a Specified Operating Environment.

15. Return or Destruction of Licensed Program Materials

- 15.1 Within one month from the date of discontinuance of any License granted hereunder, the Customer will furnish to IBM a completed form entitled IBM Licensed Program Certificate of Return or Destruction certifying that to the best of the Customer's knowledge and ability, the original and all copies of the Licensed Program Material have been returned to IBM or destroyed. This requirement will apply to all copies in any form, whether partial or complete including translations, and whether or not modified or merged into other program material as authorized herein. However, upon prior written authorization from IBM, the Customer may retain a copy for archive purposes only.
- 15.2 When the Customer is licensed to use a new version of a Licensed Program, which carries a different program number, the Customer may retain the prior version of the Licensed Program Material for a period not to exceed three months following its date of discontinuance, provided that this shall be used only if a defect in the new version prevents its use. During this period, the Customer will pay only the applicable charges for the new version of the Licensed Program Material. Within one month following this three-month period, the Customer will furnish to IBM a completed form entitled IBM Licensed Program Certificate of Return or Destruction for the prior version as set forth above.

16. Patent and Copyright Indemnity

- 16.1 IBM will defend any claim brought against the Customer that Licensed Program Material furnished hereunder and USED within the scope of a License granted hereunder infringes a patent or copyright in the United Kingdom. IBM will pay those costs and damages finally awarded against the Customer in any action based on any such claim, subject to the limitations of liability set forth in this Agreement, and provided that:
- (a) the Customer promptly notifies IBM in writing of any such claim, and

(b) IBM has sole control of the defence of any such claim and all related settlement negotiations.

- 16.2 However, if the costs and damages attributable to a claim of infringement of a patent in the United Kingdom are expected to exceed such limitation of liability, the Customer may elect to defend such claim, provided that IBM shall be permitted to participate fully in the defence and/or shall agree to any settlement of such claim.
- 16.3 If any such claim of patent or copyright infringement has occurred, or in IBM's opinion is likely to occur, the Customer agrees to permit IBM, at its option and expense:
- (a) either to procure for the Customer the right to continue USING the Licensed Program Material, or
 - (b) to modify the same so that it becomes non-infringing, or
 - (c) to replace the same by non-infringing Licensed Program Material.
- 16.4 If the foregoing alternatives are not reasonably available to IBM, IBM may discontinue the License for the Licensed Program Material on one month's written notice, and the Customer agrees on receipt of such notice to return or destroy the original Licensed Program Material furnished by IBM and all copies thereof.
- 16.5 If such written notice has been given by IBM and the Licensed Program Material is not the subject of an actual or potential claim of copyright infringement, the Customer may give notice in writing to IBM during the one month after receipt of the notice from IBM that:
- (a) the Customer elects to continue to be licensed to USE the Licensed Program Material until there has been an injunction against the continued USE of the Licensed Program Material, and
 - (b) the Customer agrees to undertake at the Customer's expense defence of any action against the Customer based on such continued USE and to indemnify IBM with respect to all costs and damages awarded against IBM and the Customer and attributable to such continued USE after the receipt by IBM of such notice from the Customer: it being understood that IBM shall be permitted to participate at its expense in the defence of any such action if it is based on a claim against IBM.
- 16.6 Notwithstanding the above, IBM shall have no obligation to defend any claim brought against the Customer and no liability for any such claim if such claim is based upon:
- (a) the USE of other than a current unaltered release of any Licensed Program Material furnished hereunder, and if such claim would have been avoided by the USE of a current unaltered release of such Licensed Program Material, or
 - (b) the combination, operation, or USE of any Licensed Program Material furnished hereunder with programs or data not supplied by IBM, and if such claim would have been avoided by the combination, operation or USE of such Licensed Program Material with other programs or data, whether or not capable of achieving the same results, or
 - (c) the USE of any Licensed Program Material furnished hereunder in other than the Specified Operating Environment applicable to such Licensed Program Material, and if such claim would have been avoided by USE in such Specified Operating Environment.
- 16.7 The foregoing states the entire obligation and liability of IBM with respect to infringement of patents and copyright by the USE of any Licensed Program Material furnished hereunder.

17. Customer Remedies

17.1 Exclusive Remedies

IBM's entire liability and the Customer's sole remedies in respect of any "Default" shall be as set out in this Clause 17. "Default" shall mean any breach of IBM's obligations hereunder or any fundamental breach or breach of a fundamental term of this Agreement or any default, act, omission or statement of IBM, its employees, agents or sub-contractors in connection with or in relation to the subject matter of this Agreement and in respect of which IBM is legally liable to the Customer. This Clause 17 shall not confer rights or remedies on the Customer to which he would not otherwise be legally entitled.

17.2 Personal Injury

IBM does not exclude liability for death or personal injury to the extent that it results from the negligence of IBM, its employees, agents or sub-contractors.

17.3 Property Damage

Subject to Clause 17.7, IBM does not exclude liability for direct physical damage to tangible property of the Customer, to the extent that it is caused by the negligence of IBM its employees, agents or sub-contractors.

17.4 Damages Remedy

The Customer's remedies (whether in contract or in tort including negligence) against IBM for any Default shall be limited to damages. Such damages shall be subject to the limitations by amount and type specified in this Clause 17. For the purpose of this Clause 17 this Agreement shall include any Supplement issued under this Agreement.

17.5 Specific Remedies

In respect of any Default relating to Licensed Program Material or Program Services furnished hereunder, IBM's liability for damages shall be limited as follows:

- 17.5.1 IBM shall always be afforded reasonable opportunity to correct any deficiency in the Licensed Program Material or Program Services before being in breach of its obligations under this Agreement. If, in the event of a Default, the Customer thereafter incurs "Expenses" (as defined below) the Customer may recover from IBM damages equal to the amount of those Expenses.
- 17.5.2 (a) The Customer shall permit IBM to take all reasonable measures to correct program defects or errors found in the Licensed Program Material and to make the Licensed Program Material operate as warranted and at the option of IBM to substitute the Licensed Program Material and to take such other measures as may be necessary in each case to correct a Default.
- (b) If after repeated efforts IBM fails to correct the Default and the Default is material and as a result the Customer discontinues the Licence for the affected Licensed Program Material the Customer may, in addition to damages for Expenses as provided in Clause 17.5.1, recover from IBM damages equal to "Set Up Costs" (as defined below) incurred by the Customer.
- 17.5.3 "Expenses" shall mean such costs actually incurred by the Customer as are in excess of the costs that would have otherwise been incurred by him in the absence of any Default provided that such costs are directly caused by the Default and are reasonably and necessarily incurred by the Customer in using the Licensed Program Material or other program material used in substitution for or in addition to the Licensed Program Material.
- "Set Up Costs" shall mean that part of the specific costs of normal preparations for the use of the Licensed Program Material which have been actually incurred by the Customer and which were reasonably and necessarily incurred by him after signature by IBM of this Agreement provided that such costs are directly related to Licensed Program Material in respect of which IBM is liable and for which the Customer has discontinued the Licence together with any initial charges or one time charges associated with such Licensed Program Material.
- 17.5.4 IBM shall not be liable for: (1) performance or non performance of the Licensed Program Material during the Testing Period; (2) Expenses to the extent that IBM affords the Customer a reasonable opportunity to reduce those Expenses by using alternative program materials; (3) Set Up Costs, to the extent that the preparations referred to in Clause 17.5.3 are of use for any alternative program materials.
- 17.5.5 IBM shall not be liable for Expenses incurred under Clauses 17.5.1 or 17.5.2 after the date:
- (a) on which IBM corrects the Default, as provided in Clause 17.5.2(a);
 - (b) the Customer discontinues the Licence for the affected Licensed Program Material;
 - (c) twelve months after the date on which IBM became liable for the Default;
- whichever shall first occur.
- 17.5.6 IBM shall in no circumstances be liable for Set Up Costs unless IBM is informed of the Default within 12 months of the date of commencement of charges for the Licensed Program Material as specified herein.
- 17.5.7 The Customer may discontinue a Licence for Licensed Program Material for any material breach of the Agreement by IBM.

17.5.8 IBM's liability under this Clause 17.5 shall be subject to the limitations in this Clause 17.

17.6 Monetary Limits of Damages

IBM's total liability in respect of any one Default shall not exceed the greater of £20,000 or "Twelve Months Charges." The "Twelve Months Charges" shall mean those charges, including any initial process or one-time charges, which would be applicable (at the time the Default occurred) to a Licence for the Licensed Program Material over a period of 12 months.

A number of Defaults, whether successive or concurrent, which together result in or contribute to substantially the same loss or damage shall be treated as one Default which for the purpose of determining the "Twelve Months Charges" shall be deemed to occur at the date of the occurrence of the last of such Defaults.

The monetary limits set out above shall not apply to any liability on the part of IBM referred to in Clauses 17.2 and 17.3. IBM's liability under Clause 16.1 to pay costs and damages awarded against the Customer shall be limited to the amounts applicable under this Clause 17.6 in respect of patent infringement but shall not be so limited in respect of any claims of copyright infringement.

17.7 Type of Damages Liability

Except as provided in Clause 17.2 in no event shall IBM be liable for the following loss or damage howsoever caused and even if foreseeable by or in the contemplation of IBM:

- (a) Economic loss which shall include loss of profits, business, revenue, goodwill and anticipated savings.
- (b) Damages in respect of special, indirect or consequential loss or damage (other than Expenses, Set Up Costs, or direct physical damage to tangible property of the Customer caused by the negligence of IBM, its employees, agents or sub-contractors).
- (c) Any claim made against the Customer by any other party (save as expressly provided in Clause 16.1).

17.8 Time Limit for Actions

Except in respect of the liability of IBM referred to in Clause 17.2 no action (whether in contract or tort, including negligence, and regardless of form including arbitration proceedings) arising out of the Agreement or in connection with a Licence, Licensed Program Material, Program Services, or other services of any kind supplied or to be supplied hereunder may be brought by either party more than two years after the party concerned becomes aware or should reasonably have become aware of the facts constituting the cause of action.

17.9 Exclusions

Licensed Program Material has not been produced to meet individual Customer specification and it is, therefore, for the Customer to implement his application of the Licensed Program Material together with data processing machines and programs selected by the Customer, in combination to meet his specific requirements. The Licensed Program Material cannot be tested in every possible combination and operating environment. IBM is unable to represent that its operation will be uninterrupted or error free. The testing period and the early availability of printed Material are designed to assist the Customer's evaluation and implementation. The continuing management and operation of the Licensed Program Materials, machines and other programs in combination, and any changes thereto, are under the control of the Customer. Accordingly IBM limits its liability under this Agreement and it is agreed that except as expressly set forth in this Agreement, all conditions or warranties, express or implied, statutory or otherwise (including, but not limited to any concerning the fitness of any Licensed Program Material for a particular purpose) are hereby excluded.

IBM shall not be liable for any loss or damage caused by the Customer's failure to fulfil his responsibilities under this Agreement or arising from any matter under the control of the Customer.

17.10 Application of this Clause 17

The parties expressly agree that should any limitation or provision contained in this Clause 17 be held to be invalid under any applicable statute or rule of law it shall to that extent be deemed omitted, but if IBM thereby becomes liable for loss or damage which would otherwise

have been excluded, such liability shall be subject to the other limitations and provisions set out above.

18. General

- 18.1 The Customer shall not assign or otherwise transfer all or any part of this Agreement or assign, sub-licence or transfer any of the Licences or Licensed Program Materials to which it applies or copies of such Licensed Program Materials without the prior written consent of IBM. Any attempted assignment, sub-licence or transfer by the Customer without IBM's written consent is void.
- 18.2 The terms and conditions of this Agreement may be modified by IBM upon six months' prior written notice to the Customer, except that any modifications of the terms and conditions which relate specifically to termination of this Agreement or discontinuance of any Licence granted hereunder as provided in the clause entitled "Term" shall be effective only as to the Licensed Program Materials specified in a Supplement signed by IBM after the date of such notice. The Customer may terminate this Agreement, including all Licences hereunder, or discontinue any of the Licensed Programs hereunder before the effective date of such modifications upon prior written notice to IBM, otherwise, such modification shall become effective. Except as provided above, the Agreement or any Supplement can only be modified by a written agreement duly signed by persons authorised to sign agreements on behalf of the Customer and IBM, and variance from the terms and conditions of this Agreement and any Supplement issued hereunder in any Customer order or other written notification will be of no effect.
- 18.3 The term "this Agreement" used herein shall include any future written amendments, modifications or Supplements made in accordance herewith.

- 18.4 If any provisions, or portions thereof, of this Agreement are held to be invalid under any applicable statute or rule of law they are to that extent to be deemed omitted.
- 18.5 The Customer agrees that his acceptance of any Licensed Program Material from IBM is conclusive evidence of his agreement that the Licence for such Licensed Program Material is governed by the terms and conditions of this Agreement and the Supplement covering the said Licence.
- 18.6 Where any computer program materials in relation to which rights are owned by a third party are to be copied or otherwise used in association with any Licensed Program Material the Customer warrants that he has any necessary permission, express or otherwise, to enable the Customer to copy or otherwise use such computer program materials without infringing said rights.
- 18.7 If the Customer discloses such computer program materials to IBM or requests or permits IBM to copy or otherwise use them, the Customer warrants that he is entitled to make such disclosure or request or give such permission, and that he has any necessary consent, express or otherwise, to enable IBM to copy or otherwise use the computer program materials as so requested or permitted without infringing said third party rights.
- 18.8 All disputes arising out of or relating to this Agreement shall be referred to the arbitration of two persons (one to be appointed by IBM and one by the Customer) or their Umpire in accordance with the provisions of the Arbitration Act 1950 (or any statutory amendment or re-enactment thereof).
- 18.9 This Agreement shall be governed by the Laws of England.
- 18.10 The Customer agrees that this Agreement is the complete and exclusive statement of the agreement between the parties, which supersedes all proposals or prior agreements, oral or written, and all other communications between the parties relating to the subject-matter of this Agreement.

Signed for and on behalf of
(Name of Customer)

by

Authorised signatory

Title

Date

Signed for and on behalf of
IBM United Kingdom Limited

by

Authorised signatory

Title

Date

General Systems Division
IBM United Kingdom Limited
PO Box 41, North Harbour, Portsmouth PO6 3AU

*Supplement
Agreement for
IBM Licensed
Programs*

Customer Name

(hereinafter called "the Customer")

Address

Customer No.

Branch Office No.

Agreement No.

(hereinafter called "the Referenced Agreement")

Supplement No.

Supplement Modification No.
(if applicable)

THE CUSTOMER AGREES THAT THE REFERENCED AGREEMENT AND THIS SUPPLEMENT ARE THE COMPLETE AND EXCLUSIVE STATEMENT OF THE AGREEMENT BETWEEN THE PARTIES WHICH SUPERSEDES ALL PROPOSALS OR PRIOR AGREEMENTS, ORAL OR WRITTEN, AND ALL COMMUNICATIONS BETWEEN THE PARTIES RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT AND THIS SUPPLEMENT.

The customer requests Licences for the Licensed Programs and/or Optional Materials specified overleaf and agrees to accept such Licences under the terms and conditions of the Referenced Agreement:

IBM United Kingdom Limited (IBM) hereby confirms and accepts the Customer's request for the Licences shown overleaf. IBM hereby grants to the Customer non-transferable, non-exclusive Licences for the Licensed Programs and/or Optional Materials listed overleaf under the terms and conditions of the referenced Agreement.

Customer Signature

Accepted by IBM United Kingdom Rentals Limited:
Authorised Signatory

Official Title of Signatory

Date of Signature

Date of Signature

Licensed Program List

| Licensed Program/ Optional Material | Type/ Serial No. | Designated Machine | Inst'n/ Loc'n Licence Applies ** | W'ty (Yes or No) | Test Period (Days) | Estimated Shipping Date/ Effective Date for Additional Licenses | Charge | Ch'ging Proc. * | Paym't Period (if app) | Central Local Serv./ Assist | Date/Months (if appl) | Program Services (See Notes) |
|--|---------------------|--------------------|--|------------------------|--------------------------|---|--------|-----------------------|------------------------------|--------------------------------------|--------------------------|---------------------------------|
| | | | | | | | | | | | | |

*Charging Procedure

1. Monthly
2. One-time in lieu of Monthly
3. Initial Charge

Program Service Notes

1. Available until discontinued by IBM upon 6 months' notice
2. Available until date specified
3. Available for number of months specified

** INST'N/LOC'N Licence

- IL = Installation Licence Applies
- LL = Location Licence Applies

Agreement for IBM Systems Engineering Services

Customer Name

(hereinafter called 'the Customer')

Customer No.

Branch Office No.

Address (Registered Office)

Agreement No.

The Customer and IBM United Kingdom Limited (hereinafter called IBM) agree that the following terms and conditions shall apply to all Systems Engineering Services furnished by IBM to the Customer.

Purchasing SE work

Terms and Conditions

1. Services

Systems Engineering Services (hereinafter called Services) shall mean assistance in the installation and use of data processing products by Systems Engineering personnel furnished by IBM (hereinafter called IBM Personnel) including, but not limited to, special studies, programming and application design and development, systems analysis and design, conversion and implementation planning, and installation evaluation. Except for Group Service Sessions, these Services will normally be furnished at the Customer's premises. Group Service Sessions will be scheduled by IBM and may be attended by representatives of the Customer together with representatives of other customers.

2. Term

This Agreement is effective from the date on which it is accepted by an authorised signatory of IBM and shall remain in force until terminated by the Customer upon one month's prior written notice or by IBM upon three months' prior written notice. This Agreement may only be terminated when all Services authorised hereunder have been completed or have been terminated in accordance with the provisions of this Agreement. Completion or termination of any specific Services hereunder shall not in itself be deemed to terminate this Agreement.

3. Charges

- a. The Customer agrees to pay IBM's charges for these Services in accordance with the rates and minima which are specified in the applicable IBM Service Estimate or Authorisation for Service made hereunder, and for billable travel time or other billable time of IBM Personnel. Charges in respect of machine time, if any, are not included in such rates and minima and will be billed separately.
- b. The rates, rate classifications and minima specified in any IBM Service Estimate or Authorisation for Service shall be those currently in effect and are subject to change by IBM upon three months' prior written notice to the Customer. When such a change will increase the price to be paid by the Customer for Services authorised thereunder, the Customer may terminate such Services prior to the effective date of such change paying only for Services furnished prior to such termination date.
- c. Charges will be invoiced monthly as Services are rendered and will be payable upon receipt of invoice. There shall be added to any charges under this Agreement amounts paid or payable by IBM equal to any taxes or duties, or amounts in lieu thereof, however designated, levied or based on such charges or on this Agreement or the Services rendered hereunder, excluding, however, taxes assessed upon profits or gains.
- d. In addition to the charges, the Customer will reimburse IBM for special or unusual out-of-pocket expenses incurred at the Customer's specific request.

4. Control and Supervision

Customer activities in which IBM Personnel assist shall be the responsibility of, and shall remain under the supervision, management and control of, the Customer.

5. Rights in Data

- a. All original material, whether written or readable by machine, including programs, card decks, tapes, listings and other programming documentation originated and prepared for the Customer pursuant to this Agreement shall belong exclusively to the Customer. This Agreement shall not preclude IBM from developing materials which are competitive, irrespective of their similarity to materials which might be delivered to the Customer pursuant to this Agreement.
- b. The ideas, concepts, know-how, or techniques relating to data processing

submitted to IBM by the Customer or developed during the course of this Agreement by IBM Personnel or jointly by IBM Personnel and Customer Personnel can be used by either party in any way which it may deem appropriate. Each invention, discovery or improvement which includes ideas, concepts, know-how or techniques relating to data processing developed pursuant to this Agreement shall be treated as follows:

- i. If made by Customer Personnel, any patents obtained thereon shall be the property of the Customer;
- ii. If made by IBM Personnel, any patents obtained thereon shall be the property of IBM and IBM grants to the Customer a non-exclusive, irrevocable, and royalty-free licence throughout the world;
- iii. If made jointly by IBM Personnel and Customer Personnel, any patents obtained thereon shall be jointly owned with each party having the unrestricted right, without accounting, to license third parties thereunder and to assign his share thereof.
- c. Without in any way limiting the effect of Clause 5b hereof in the event that Services are to be furnished under this Agreement by IBM in connection with program materials provided by the Customer in relation to which rights are owned by third parties, the Customer warrants that:
 - i. The Customer has any necessary permission, express or otherwise, to enable such program materials to be copied and modified and run on IBM equipment during the course of the Services without infringing any third party copyright.
 - ii. In furnishing the Services IBM will not be infringing the rights of any third parties.
 - iii. The disclosure or use of the program materials during the course of the Services will not involve a breach of any confidential or contractual relationship.

6. Personnel

- a. IBM reserves the sole right to determine the allocation of IBM Personnel in furnishing Services under this Agreement.
- b. This Agreement shall not prevent IBM from assigning the IBM Personnel who are provided to the Customer under this Agreement to perform similar Services for others or restrict IBM in any other way in its use of these IBM Personnel.

7. Service Authorisation

- a. The Customer shall authorise all Services to be performed hereunder by signing either an IBM Service Estimate form or an Authorisation for Service form as required by IBM.
- b. Estimates shown in such IBM Service Estimates or Authorisations for Service are not guaranteed in any way or to any extent by IBM and do not change this Agreement to a fixed price contract. If IBM determines that the estimates will be exceeded, IBM will notify the Customer as soon as practicable, and the Customer may thereupon terminate the Services, paying only for Services furnished prior to such termination date. Charges will be paid by the Customer whether the amount of the charges is above or below the estimate.
- c. In connection with IBM Service Estimates, the parties may agree on work schedules for IBM Personnel. IBM will use reasonable efforts to provide the Services of IBM Personnel in accordance with such schedules subject to circumstances beyond IBM's control. If IBM Personnel fail to perform scheduled Services under this Agreement because of illness or other causes beyond IBM's reasonable control, IBM will attempt to replace such Personnel within a reasonable time, but IBM shall not be liable for failure to do so. Any such work schedules may be revised by mutual consent.

8. Limitation of Liability

- a. The warranties and conditions expressed in this Agreement and in any IBM Service Estimate or Authorisation for Service made hereunder are in lieu and exclusive of all other warranties and conditions, express or implied, statutory or otherwise, relating in anyway to Services.
- b. The Customer agrees that IBM's aggregate liability (in contract or in tort) for damages shall not exceed the total amount paid for the Services furnished under the applicable IBM Service Estimate or Authorisation for Service. The Customer further agrees that IBM will not be liable in respect of any loss of profits or any claim or demand against the Customer by any other party. In no event will IBM be liable for damages in respect of special, indirect or consequential loss even if IBM has been advised of the possibility of such loss.
- c. The Customer's remedies as set forth in this Agreement are his exclusive remedies.

9. General

- a. The terms and conditions of this Agreement may be changed by IBM upon three months' prior written notice to the Customer. In this event, the Customer may terminate this Agreement and all Services authorised at that time by one month's prior written notice to IBM; otherwise such change shall become effective.

- b. No alteration, modification or addition to this Agreement nor any waiver by IBM of any of the terms and conditions contained in this Agreement shall be valid unless made in writing and signed by a duly authorised representative of IBM at its Head Office.
- c. Upon written notice to the other, either party may at any time terminate this Agreement and all Services then authorised hereunder for failure of the other party to comply with any of its terms and conditions.
- d. The rights and obligations of the parties under the clause of this Agreement entitled 'Rights in Data' shall survive and continue after expiration or termination of this Agreement and shall bind the parties and their successors and assigns.
- e. The terms and conditions of this Agreement shall prevail notwithstanding any variance with the terms and conditions of any order submitted by the Customer for Services hereunder.
- f. This Agreement and any IBM Service Estimate and /or Authorisation for Service made hereunder shall constitute the entire agreement between the Customer and IBM, and shall supersede all proposals oral or written and all other communications between the Customer and IBM relating to the subject matter of this Agreement. No representation or statement not contained in this Agreement or in any IBM Service Estimate or Authorisation for Service made hereunder shall be binding upon IBM as a condition or warranty or otherwise.
- g. This Agreement shall be governed by the Laws of England.

Signed for and on behalf of (name of Customer)

Signed for and on behalf of
IBM United Kingdom Limited

by

by

Authorised signature

Authorised signature

Title

Title

Date

Date

The information below is an estimate only and is not guaranteed in any way or to any extent. If IBM determines that the Estimated Total will be exceeded, IBM will notify the Customer as soon as practicable and the Customer may thereupon terminate the Services, paying only for Services furnished prior to such termination date. Charges will be paid by the Customer in accordance with the referenced Agreement for IBM Systems Engineering Services whether the amount of the charges is above or below the Estimated Total.

Customer Name

Customer/Agreement No.

Service Estimate No.

Branch Office No.

Customer Address

Estimated Service Period (day, month, year)

From

To

Customer Invoicing Reference

Scope of Effort

Original Material to be delivered to Customer under this Scope of Effort

Estimate

| Skill Classification | Billable Hours | Hourly Rate | Estimated Amount |
|----------------------|---------------------------------|----------------------------------|------------------|
| 1. Basic | | | |
| 2. General | | | |
| 3. Complex | | | |
| Group Service | | | |
| No. of sessions | No. of participants per session | Rate per participant per session | |
| | | | |
| Estimated Total £ | | | |

Minimum Charges (at the indicated rates)

Systems Engineering Services (except Group Services Sessions)
Services may only be ordered in half or full days. There is a one hour minimum charge.

Travel

The Customer will also pay charges for travel by IBM Personnel based on these rates on standard travel times.

Authorisation for the above Services is given under the terms and conditions of the referenced Agreement for IBM Systems Engineering Services and the minimum charges are agreed to.

Authorised Customer signature

Authorised IBM signature

Date

General Systems Division
IBM United Kingdom Limited
PO Box 41, North Harbour, Portsmouth PO6 3AU

*Agreement No. 1000
of IBM United Kingdom Limited*

Customer Name

(hereinafter called "the Customer")

Address

Customer No.

Branch Office No.

Agreement No.

Purchase

IBM United Kingdom Limited (hereinafter called "IBM") on acceptance of this Agreement by authorised signature agrees (1) to sell Machines to the Customer, (2) to provide Warranty Service for Machines and (3) to furnish Programming and Programming Services, all subject to the definitions, terms and conditions of this Agreement.

The Customer agrees to accept the Machines, Warranty Service, Programming and Programming Services under the terms and conditions of this Agreement.

"Machines" shall mean any machine, model upgrade or feature listed in the Schedule hereto and/or in the specification sheet(s) attached to and hereby forming part of this Agreement.

The Customer accepts responsibility for:

- (a) the selection of the Machines and Programming to achieve his intended results;
- (b) Management, supervision and the use of the Machines and Programming; and
- (c) the adequacy and accuracy of his source data, instructions, programs and procedures (including but not limited to those involving security, check points and audit controls) and the results obtained therefrom.

The Customer also has responsibility for the selection and use of and results obtained from any other equipment programs or services used with the Machines and Programming.

Terms and Conditions

1. Title

Title in each of the Machines is to remain vested in IBM until the full purchase price thereof and transportation and special handling or hoisting charges and any sums due to IBM under Clause 13 (Terms) will have been paid. Failure to pay the purchase price or the above mentioned charges for transportation handling and hoisting and taxes when due shall give IBM the right to take possession of the Machine with or without notice and without liability and, at its option, to avail itself of any other legal remedy.

2. Risk of Loss

During the period the Machines are in transit or in possession of the Customer up to and including the Date of Installation, IBM and its insurers, if any, relieve the Customer of responsibility for all risks of loss or damage to the Machines except loss or damage caused by nuclear reaction, nuclear radiation or radioactive contamination for which the Customer is legally liable. After the Date of Installation, the risk of loss or damage shall be on the Customer.

3. Delivery

Delivery will be made in accordance with IBM's delivery schedule. IBM reserves the right to update the delivery schedule as necessary in accordance with IBM's applicable shipment sequence. Prior to shipment IBM will make reasonable accommodation of a delay requested by the Customer.

4. Programming

- 4.1 The term "Programming" as used in this Agreement shall mean such programming as IBM may make generally available, from time to time, without separate charge, for machines of the types ordered by the Customer under this Agreement. IBM will furnish such Programming as may be requested by the Customer.
- 4.2 The term "Programming Services" shall mean such services as IBM may make generally available without separate charge in connection with Programming. IBM will determine the Programming Services available and their duration.
- 4.3 The terms "Programming" and "Programming Services" do not include programs and services that are available for a separate charge or which are offered under separate written agreements.

5. Installation

The Customer agrees to provide a suitable installation environment as specified in the applicable IBM installation manual and instructions and to furnish all labour required for unpacking and placing each Machine in the desired location. Packaging materials shall be the

property of the Customer. Installation of Machines purchased under this Agreement shall be made in accordance with IBM's specifications. For all purposes of this Agreement the Date of Installation for a Machine will be the business day following the date that (i) the Machine is installed or (ii) the Machine is delivered to the Customer, if the Customer fails to provide a suitable installation environment or elects to delay installation. IBM will notify the Customer of the Date of Installation of each Machine.

6. Configuration Changes, Additional Features, Model Conversions

By agreement between IBM and the Customer, changes in the configuration of Machines may be made prior to the date of shipment. Additional features and model conversions which are field installable and generally available from IBM may be ordered by the Customer for installation in the Machines subject to IBM's then prevailing prices and terms and conditions.

7. Warranty

- 7.1 IBM warrants that each Machine will be in good working order on the Date of Installation and that it will conform to IBM's official published specifications at that date.
- 7.2 IBM further warrants that when shipped to the Customer Programming then designated by IBM for use with a Machine and for which Programming Services are then available will conform to IBM's official published specifications if properly used on the designated Machine. Thereafter, IBM will provide Programming Services subject to the provisions stated in the clause entitled "Programming."
- IBM does not warrant that the functions contained in the Programming will operate in the combinations which may be selected for use by the Customer or that all Programming errors will be corrected.
- All Programming for which no Programming Services are available is distributed as an "as is" basis without warranty.
- 7.3 IBM does not warrant that the operation of any Machine or Programming will be uninterrupted or error-free.
- 7.4 Commencing on the Date of Installation, the following additional warranty provisions shall apply to the Machine described herein:-

7.4.1 Service and Parts Warranty

- (a) IBM will provide Warranty Services to keep in or restore to, good working order each Warranty Category A Machine for one year and each Warranty Category B, C or D Machine for three months at no additional charge to the Customer, except as set forth in the clauses entitled "Exclusions" and "Travel Charges". This Warranty Service includes scheduled preventive maintenance based upon the specific needs of individual Machines as determined by IBM and unscheduled, on-call remedial maintenance. Maintenance will include lubrication, adjustments, and replacement of maintenance parts deemed necessary by IBM. Maintenance parts will be furnished on an exchange basis, and the replaced parts become the property of IBM. Warranty Service provided under this Agreement does not ensure uninterrupted operation of the Machines.
- (b) Engineering changes will be installed by IBM on Machines covered by this warranty unless the Customer elects, by written notice to IBM, to have installed only those changes designated as mandatory by IBM.
- (c) IBM shall have full and free access to the Machines to provide service thereon. The Customer shall promptly inform IBM of any change in the Machine location during the warranty period. IBM service outside the scope of this warranty will be furnished at IBM's applicable time and material rates and terms then in effect, unless such service is otherwise covered by a separate written Agreement between IBM and the Customer.

7.4.2 Parts Warranty

For one year, IBM warrants each Warranty Category B or C Machine (excluding vacuum tubes and solid state and other electronic devices which are warranted for three months) to be free from defects in material and manufacture. IBM's obligation is limited to furnishing on an exchange basis replacements for IBM parts, if any, which are found by IBM, upon inspection, to be defective, provided the Customer has

promptly reported any Machine malfunction which is, in his opinion, attributable to defective parts. Maintenance parts will be furnished on an exchange basis, and the replaced parts become the property of IBM. No service will be furnished pursuant to this parts warranty.

7.4.3 Additional Features and Model Conversions Warranty

Commencing on the date of installation of an additional feature or model conversion increment which is field installable, the following Warranties as described herein shall apply thereto:

- (a) a one-year Service and Parts Warranty if installed on a Warranty Category A Machine, or
- (b) a three-month Service and Parts Warranty if installed on a Warranty Category B or D Machine, or
- (c) a three-month Parts Warranty if installed on a Warranty Category C Machine.

In addition to the foregoing, such an additional feature or model conversion increment installed on a Warranty Category B or C Machine within one year of the date of installation of the Machine will have the unexpired Warranty if any, of such Machine.

7.4.4 Exclusions

The foregoing warranties do not include:

- (a) Repair of damage or increase in service time resulting from failure continuously to provide a suitable installation environment with all facilities prescribed by the appropriate IBM installation manual (including but not limited to failure of or failure to provide adequate electrical power, air conditioning or humidity control).
- (b) repair of damage or increase in service time attributable to the use of the Machines for other than data processing purposes for which designed;
- (c) repair of the Machine and replacement of parts arising from the use of supplies where this results in abnormal wear, damage to a Machine or repetitive service calls.
- (d) repair of damage or increase in service time caused by: accident; disaster, which shall include, but not be limited to, fire, flood, water, wind and lightning; transportation; neglect or misuse; Alterations which are defined as any change to a Machine which deviates from IBM's physical, mechanical or electrical machine design whether or not additional devices or parts are required; Attachments, which are defined as the mechanical, electrical or electronic interconnection with a Machine of non-IBM equipment or devices not supplied by IBM; or machines, except those IBM machines which are owned by IBM, under the Service and Parts Warranty provision of an IBM Agreement for Sale or under an IBM Maintenance Agreement;
- (e) repair of damage or increase in service time caused by maintenance service, or the conversion from one IBM model to another or the installation or removal of an IBM feature whenever any of the foregoing was performed by other than IBM.
This exclusion shall apply during the first three months subsequent to the date of any machine modification;
- (f) additional service time and replacement parts associated with the installation by IBM of an engineering change when such additional service and parts are required due to maintenance service, the conversion from one IBM model to another or the installation or removal of an IBM feature whenever any of the foregoing was performed by other than IBM; Alterations or Attachments;
- (g) furnishing supplies or accessories; painting or refinishing the Machines or furnishing material therefor; inspecting altered Machines, making specification changes or performing services connected with relocation of Machines; or adding or removing accessories, attachments or other devices;
- (h) electrical work external to the Machines or maintenance of accessories, Alterations, Attachments, or other devices not furnished by IBM;
- (i) such service which is impractical for IBM to render because of Alterations in or Attachments to the Machines; and
- (j) providing any service or parts in the Machine is located outside the United Kingdom.

- 7.5 IBM shall not be responsible for failure to provide service or parts due to causes beyond its control or where the provision of such service would in the opinion of IBM involve a safety hazard.

8. Travel Charges

There will be no charge for travel time and expenses associated with Warranty Service or Programming Services under this Agreement except that actual travel time and expenses will be charged if Machines are installed in a place where IBM regularly has no personnel trained to provide Warranty Service for the Machines or to provide the Programming Services concerned.

9. Maintenance Service and Parts

IBM will, if requested, provide the Customer with maintenance service for the Machines, and the repair and replacement of parts as long as such service and parts are generally available on the basis of IBM's established prices terms and conditions prevailing at the time.

10. Engineering Changes

IBM will upon request supply to the Customer at IBM's established prices and on the terms and conditions prevailing at the time such engineering changes as IBM shall have available for sale and which may be suitable for use on and in connection with the Machines. However, IBM makes no representation that engineering changes which may be announced in the future will be suitable for use on or in connection with these Machines.

11. Patent and Copyright Indemnity

- 11.1 IBM will defend any claim brought against the Customer that any Machine sold or Programming furnished hereunder or that the operation of any such Machine under the control of any such Programming infringes a patent, a design registration or copyright in the United Kingdom.

The Customer agrees to notify IBM promptly in writing of any such claim and to permit IBM to have control of the defence of any such claim and all related settlement negotiations.

IBM will pay those costs and damages finally awarded against the Customer in any action based on any such claim, whether or not defended by IBM.

- 11.2 If any such claim as is mentioned in Clause 11.1 occurs, or in IBM's opinion is likely to occur, the Customer agrees to permit IBM then, at its option and expense, either to procure for the Customer the right to continue using the Machine or Programming or to modify the same so that it becomes non-infringing or to replace the same by a non-infringing machine or non-infringing Programming.
- 11.3 If in the circumstances described in Clause 11.2 the alternatives set out in that clause are not available on terms which are reasonable in IBM's judgement the Customer agrees that IBM shall then have the option, exercisable by a request in writing made to the customer, to repurchase the Machine and/or to require the return of the Programming. The purchase price of the Machine payable by IBM to the Customer shall be the price paid for the Machine by the Customer to IBM less depreciation. The depreciation shall be an equal amount per year over IBM's established period of depreciation for that Machine current at the time of signature of this Agreement.
- 11.4.1 Notwithstanding the provisions of Clauses 11.1, 11.2 and 11.3 IBM shall have no obligation to defend any such claim as is mentioned in Clause 11.1 and no liability for any such claim if such claim arises from:

- (a) the combination, operation or use of any Machine sold or Programming furnished hereunder with equipment or data not supplied by IBM, or
- (b) the combination, operation or use of any Machine sold or Programming furnished hereunder with any program other than or in addition to the Programming furnished hereunder and if such claim would have been avoided by use of another program whether or not capable of achieving the same results, or
- (c) the alteration by or under the direction of the Customer of any Machine sold or Programming furnished hereunder.

- 11.4.2 Further, notwithstanding the provisions of Clauses 11.1, 11.2 and 11.3 IBM shall have no obligation to defend any claim brought against the Customer that any Programming furnished hereunder infringes a patent or copyright in the United Kingdom, and no liability for any such claim, if such claim arises from the use of other than the current unaltered release of any Programming and if such claim would have been avoided by the use of such current unaltered release.

11.5 Notwithstanding anything contained in this Clause 11, IBM's liability for any loss or damage sustained by the Customer by reason of the infringement of a patent or copyright in the United Kingdom by any Programming furnished hereunder shall in all circumstances be subject to Clauses 12.6 and 12.7 of this Agreement.

12. Customer Remedies

12.1 Exclusive Remedies

IBM's entire liability and the Customer's sole remedies in respect of any "Default" shall be as set out in this Clause 12.

"Default" shall mean any breach of IBM's obligations hereunder or any fundamental breach or breach of a fundamental term of this Agreement or any default, act, omission or statement of IBM, its employees, agents or sub-contractors in connection with or in relation to the subject matter of this Agreement and in respect of which IBM is legally liable to the Customer.

This Clause 12 shall not confer rights or remedies on the Customer to which he would not otherwise be legally entitled.

12.2 Statutory Liability

IBM does not exclude liability for death or personal injury to the extent that it results from the negligence of IBM, its employees, agents or sub-contractors, and accepts liability for any breach on the part of IBM of any undertaking as to title, quiet possession and freedom from encumbrance which may be implied by Section 12 of the Sale of Goods Act 1893.

12.3 Property Damage

Subject to Clause 12.7 IBM does not exclude liability for direct physical damage to tangible property of the Customer to the extent that it is caused by the negligence of IBM, its employees, agents or sub-contractors.

12.4 Damages Remedy

The Customer's remedies (whether in contract or in tort including negligence) against IBM for any Default shall be limited to damages. Such damages shall be subject to the limitations by amount and type specified in this Clause 12. For the purpose of this Clause 12, this Agreement shall include any order accepted under this Agreement.

12.5 Specific Remedies

In respect of any Default relating to a Machine delivered hereunder prior to the end of its Warranty Period, or to Warranty Service, Programming or Programming Services furnished hereunder, IBM's liability for damages shall be limited as follows:

12.5.1 IBM shall always be afforded reasonable opportunity to correct any deficiency in the Machine or Programming before being in breach of its obligations under this Agreement. If, in the event of a Default, the Customer thereafter incurs "Expenses" (as defined below) the Customer may recover from IBM damages equal to the amount of those Expenses.

12.5.2 (a) The Customer shall permit IBM to take all reasonable measures to install the Machine in or restore it to good working order and to make the Programming operate (all as warranted) and at the option of IBM to substitute or add to the Machine or Programming and to take such other measures as may be necessary in each case to correct a Default.

(b) If after repeated efforts IBM fails so to correct the Default and the Default is material (and in the case of a Programming deficiency, a Machine initially installed with that Programming is thereby rendered functionally inoperative) and the Customer has ceased permanently to use the affected Machine, the Customer may, in addition to damages for Expenses as provided in Clause 12.5.1 recover from IBM damages equal to "Set Up Costs" (as defined below) and other damages not exceeding the Purchase Price (as defined below).

12.5.3 "Expenses" shall mean such costs actually incurred by the Customer as are in excess of the costs that would have otherwise been incurred by him in the absence of any Default provided that such costs are directly caused by the Default and are reasonably and necessarily

incurred by the Customer in using the Machine or the Programming or other data processing services or machines used in substitution for or in addition to the Machines or Programming.

"Set Up Costs" shall mean that part of the specific costs of normal preparations for the installation and use of the Machine which have been actually incurred by the Customer and which were reasonably and necessarily incurred by him after signature by IBM of this Agreement provided that such costs are directly related to a Machine in respect of which IBM is liable and which the Customer has ceased permanently to use, together with costs of transportation, handling and hoisting paid by the Customer in respect of such Machine.

The "Purchase Price" shall be that invoiced to the Customer (or, in the event that the Machine has not yet been invoiced to the Customer, the price which would be payable by the Customer in accordance with the terms of Clause 13) for the Machine in respect of which IBM is liable, and in the case of loss or damage arising from or related to Programming or Programming Services shall be confined to the price of those Machines which (1) are directly related to the portions of the Programming in respect of which IBM is liable, and (2) are rendered functionally inoperative by the Programming deficiency, provided that in no circumstances shall one Machine be included more than once in the calculation of the purchase price applicable to any one Default.

12.5.4 IBM shall not be liable for: (1) Expenses to the extent that IBM affords the Customer a reasonable opportunity to reduce those Expenses by using alternative Machines, Programming or Services; (2) Set Up Costs, to the extent that the preparations referred to in Clause 12.5.3 are of use for alternative equipment.

12.5.5 IBM shall not be liable for any Expenses incurred under Clauses 12.5.1 or 12.5.2 after the date:

- (a) on which IBM corrects the Default as provided in Clause 12.5.2
- (a)
- (b) twelve months after the date on which IBM became liable for the Default

whichever shall first occur.

12.5.6 IBM shall in no circumstances be liable for Set Up Costs unless the Default occurs before the end of the Warranty Period of the affected Machine.

12.5.7 IBM's liability under this Clause 12.5 shall be subject to the limitations in this Clause 12.

12.6 Monetary Limits of Damages

IBM's total liability in respect of any one Default shall not exceed the greater of £75,000 or 125 per cent of the Purchase Price as defined above.

A number of Defaults, whether successive or concurrent, which together result in or contribute to substantially the same loss or damage shall be treated as one Default which for the purpose of determining the Purchase Price shall be deemed to occur at the date of the occurrence of the last of such Defaults.

The monetary limits set out above shall not apply to any liability on the part of IBM referred to in Clauses 12.2 and 12.3 above nor the cost and damage awards referred to in Clause 11.1.

12.7 Type of Damages Liability

Except as provided in Clause 12.2 in no event shall IBM be liable for the following loss or damage howsoever caused and even if foreseeable by or in the contemplation of IBM:

- (a) Economic loss which shall include loss of profits, business, revenue, goodwill and anticipated saving.
- (b) Damages in respect of special, indirect or consequential loss or damage (other than Expenses, Set Up Costs, or direct physical damage to tangible property of the Customer caused by the negligence of IBM, its employees, agents or sub-contractors).
- (c) Any claim made against the Customer by any other party (save as expressly provided in Clause 11.1).

12.8 Time Limit for Actions

Except in respect of the liability of IBM referred to in Clause 12.2 no action (whether in contract or in tort, including negligence, and regardless of form including arbitration proceedings) arising out of the Agreement or in connection with the Machine, Programming,

Programming Services, warranty or other services of any kind supplied or to be supplied hereunder may be brought by either party more than two years after the party concerned becomes aware or should reasonably have become aware of the facts constituting the cause of action.

12.9 Exclusions

The Machine and Programming have been produced to standard IBM specifications and it is therefore for the Customer to implement his application of the Machine and Programming together with other programs he selects in combination to meet his specific requirements. The Machine and Programming cannot be tested in every possible combination and operating environment. IBM is unable to represent that their operation will be uninterrupted or error-free. The continuing management and operation of the Machine and Programming together with other Programs in combination and any changes thereto are under the control of the Customer. Accordingly IBM limits its liability under this Agreement and it is agreed that except as expressly set forth in this Agreement, all conditions or warranties, express or implied, statutory or otherwise (including, but not limited to any concerning the fitness of any Machine, Programming or Programming Services for a particular purpose) are hereby excluded. This Clause 12.9 shall not exclude the undertakings implied in Section 12 of the Sale of Goods Act 1893.

IBM shall not be liable for any loss or damage caused by the Customer's failure to fulfil his responsibilities under this Agreement or arising from any matter under the control of the Customer.

12.10 Application of this Clause 12

The parties expressly agree that should any limitation or provision contained in this Clause 12 be held to be invalid under any applicable statute or rule of law it shall to that extent be deemed omitted but if IBM thereby becomes liable for loss or damage, which would otherwise have been excluded such liability shall be subject to the other limitations and provisions set out above.

13. Terms

- 13.1 Payment in full for each Machine shall be due on the Date of Installation.
- 13.2 The prices listed in the Schedule to this Agreement shall not be increased nor shall any deduction be made from such prices for any reason whatsoever except as expressly provided in this Agreement.
- 13.3 If IBM gives notice of a price reduction for any Machine on or before the Date of Installation, the price of such Machine shall be decreased accordingly.

13.4 If, on the date of notice of a price increase more than six months remains prior to the date of shipment scheduled by IBM for such Machine at the time of such notice, the price of such Machine shall be increased as specified in the notice.

13.5 Following notification of any such increase under Clause 13.4 the Customer may cancel this Agreement either in toto or in respect of any Machine for which the price is increased by giving written notice to IBM served within forty five (45) days of IBM's notification of a price increase.

13.6 The prices listed in the Schedule to this Agreement are ex-IBM's United Kingdom factories or warehouses. All costs of transportation to the Customer's premises and costs of special handling or hoisting will be paid by the Customer.

13.7 The Customer agrees to pay amounts equal to any taxes (including Value Added Tax), paid or payable by IBM charged on the sale of Machines or supply of services under this Agreement or on the Agreement, excluding however taxes assessed upon profits.

14. General

14.1 The Customer shall not assign or otherwise transfer all or any part of this Agreement without the prior written consent of IBM. Any such attempted assignment or transfer by the Customer without IBM's written consent is void.

14.2 This Agreement can only be modified by a written agreement duly signed by persons authorised to sign agreements on behalf of the Customer and of IBM, and variance from the terms and conditions of this Agreement in any Customer order or other written notification will be of no effect. The term "this Agreement" as used herein includes any applicable schedule, or future written amendment made in accordance herewith.

14.3 For the purposes of this Agreement, any day from Monday to Friday inclusive other than a public holiday shall constitute a "business day".

14.4 If any provisions, or portions thereof, of this Agreement are held to be invalid under any applicable statute or rule of law, they are to that extent to be deemed omitted.

14.5 All disputes arising out of or relating to this Agreement shall be referred to the arbitration of two persons (one to be appointed by IBM and one by the Customer) or their Umpire in accordance with the provisions of the Arbitration Act 1950 (or any statutory amendment or re-enactment thereof).

14.6 This Agreement shall be governed by the Laws of England.

14.7 The Customer agrees that this Agreement is the complete and exclusive statement of the agreement between the parties, which supersedes all proposals or prior agreements oral or written, and all other communications between the parties relating to the subject matter of this Agreement.

Signed for and on behalf of
(Name of Customer)

by

Authorised signatory

Title

Date

Signed for and on behalf of
IBM United Kingdom Limited

by

Authorised signatory

Title

Date

Name of Customer

Machines supplied under this Agreement will at IBM's discretion either be newly manufactured or will have been reassembled or reconditioned at an IBM plant from serviceable new and used parts and will have been thoroughly inspected and tested for good working order. Newly manufactured Machines may contain some used parts which are warranted equivalent to new when used in the Machines. All Machines at the date of installation will conform to IBM's official published specifications.

Agreement No.

| Item No. | Type | Model† | Description and Warranty Category | Qty | Unit Price | | Amount | |
|-------------|------|--------|-----------------------------------|-----|------------|---|--------|---|
| | | | | | £ | p | £ | p |
| / | | | | | | | | |

The Machines identified by an X are specified as Customer Set Up Machines. The Customer hereby agrees he will be responsible for the set up process and disconnection when needed in accordance with the instructions which will be supplied by IBM with each Machine.

TOTAL

For all purposes of this agreement such Machines shall be deemed to be installed on:
(a) the business day following receipt at the Customer's premises, or
(b) the date the IBM system is installed, where such Machines are delivered in conjunction with, and are set up as part of, an associated IBM system.

General Systems Division
IBM United Kingdom Rentals Limited
PO Box 41, North Harbour, Portsmouth PO6 3AU

Customer Name

(hereinafter called "the Customer")

Address

Customer No.

Branch Office No.

Agreement No.

Rental

IBM United Kingdom Rentals Limited (hereinafter called "IBM") agrees (1) to lease or rent the Machines to the Customer, (2) to provide maintenance service for the Machines, and (3) to furnish Programming and Programming Services, all subject to the definitions, terms and conditions of this Agreement.

The Customer agrees to accept the Machines, Maintenance Service, Programming and Programming Services under the terms and conditions of this Agreement.

"Machine" shall mean any machine, model upgrade or feature listed in any Supplement hereto or in any Customer order accepted by IBM hereunder.

The Customer accepts responsibility for:-

- (a) the selection of the Machines and Programming to achieve his intended results;
- (b) the management, supervision and use of the Machines and Programming; and
- (c) the adequacy and accuracy of his source data, instructions, programs and procedures (including but not limited to those involving security, check points and audit controls) and the results obtained therefrom.

The Customer also has responsibility for the selection and use of and results obtained from any other equipment programs or services used with the Machines and Programming.

TERMS AND CONDITIONS

1. Contract Period

The eligibility of an IBM machine, model upgrade or feature for any particular Lease Contract Period or for a Rental Contract Period will be determined by IBM. The Customer may select a Lease or Rental Contract Period from the options available.

1.1 Lease Contract Period

- 1.1.1 Eligible Machines become subject to the provisions applicable to a Lease Contract Period when the Supplement listing them is signed by the Customer and IBM. Eligible features may also be placed under a Lease Contract Period upon acceptance by IBM of a Customer order.
- 1.1.2 The Commencement Date, Base Term and Expiry Date of a Lease Contract Period in respect of each Machine will be specified in the applicable Supplement.
- 1.1.3 The Commencement Date for a Machine not already installed will be the business day following the day the Machine is installed as specified by IBM provided that the applicable Supplement is received by IBM on or before such business day and is subsequently accepted by IBM.
- 1.1.4 The Commencement Date for a Machine already installed under a Rental Contract Period will be the day the applicable Supplement is received by IBM provided that it is subsequently accepted by IBM.
- 1.1.5 The Commencement Date for a Machine already installed under a Lease Contract Period or Extension will be the day following the Expiry Date of such Lease Contract Period or Extension provided that the applicable Supplement is received by IBM on or before that day, and is subsequently accepted by IBM.
- 1.1.6 The Expiry Date of a Lease Contract Period is determined initially by adding the Base Term to the Commencement Date, and thereafter may be adjusted as described in the clause entitled "Machine Modifications."

1.2 Rental Contract Period

- 1.2.1 A Rental Contract Period is of indefinite duration.
- 1.2.2 Eligible Machines become subject to the provisions applicable to a Rental Contract Period when the Supplement listing them is signed by the Customer and IBM or upon acceptance by IBM of a Customer order.
- 1.2.3 The Commencement Date for a Machine not already installed will be the business day following the day the Machine is installed as specified by IBM.
- 1.2.4 The Commencement Date for an eligible Machine already installed under a Lease Contract Period or Extension will be the day following the Expiry Date or Termination Date of such Lease Contract Period or Extension.

2. Charges

- 2.1 IBM will determine the Monthly Lease Charge or Monthly Rental Charge applicable to the Lease or Rental Contract Period or Periods for which each machine, model upgrade or feature is eligible together with its applicable Plan as described hereunder.

Plan A: Each Plan A Machine which is installed under a Rental Contract Period is subject to an Additional Use Charge for billable time in excess of 176 hours in any calendar month, as measured by an IBM meter, at an hourly rate which is equal to 1/176 of the Monthly Rental Charge multiplied by the applicable Additional Use Charge Percent. There is no Additional Use Charge for a Plan A Machine which is installed under a Lease Contract Period or Extension.

Plan B: For each Plan B Machine, the Monthly Lease Charge or Monthly Rental Charge is the entire charge for the use of the Machine in any calendar month.

Use Plan: Each Use Plan Machine is subject to a Monthly Use Charge which is determined by multiplying the amount of processing performed by the Machine, as measured by an IBM meter, by the then applicable Monthly Use Charge Rate.

Charges for each Machine will begin on the Commencement Date of its Lease Contract Period or Extension or Rental Contract Period.

2.2 Lease Contract Period Monthly Charges

For Lease Contract Periods and Extensions the Customer agrees to pay the applicable Monthly Lease Charge for each Machine and, in addition, the applicable Monthly Use Charge for each Use Plan Machine.

2.3 Rental Contract Period Monthly Charges

For Rental Contract Periods, the Customer agrees to pay the applicable Monthly Rental Charge for each Machine and, in addition, the applicable Additional Use Charge for each Plan Machine and Monthly Use Charge for each Use Plan Machine.

2.4 Meter Readings

IBM will install and maintain its meters for Plan A and Use Plan Machines. For each Plan A Machine, where required, and for each Use Plan Machine, the Customer agrees to furnish to IBM within 3 days of the Customer's last workday of each calendar month a monthly report showing the meter reading at the close of such last workday. The Customer agrees to use due care not to interfere with the proper operation of the meters.

2.5 Pro-rating

When a Machine is installed for part of a calendar month the Monthly Lease Charge or Monthly Rental Charge will be pro-rated on the basis of the number of days in the month. Additional Use Charges will be pro-rated in accordance with IBM established practices.

2.6 Increases in Charges payable during a Lease Contract Period

- 2.6.1 There will be a maximum Monthly Lease Charge ("Upper Limit") for each Machine throughout each Contract Year. Contract Year for a Machine shall mean any year of the Lease Contract Period starting with its Commencement Date, or an anniversary thereof, provided that the Contract Year for a model upgrade or feature addition shall be the same as that of the Machine on which it is installed. The Upper Limit for the first Contract Year is the initial Monthly Lease Charge increased by the Upper Limit Percent applicable for that Contract Year. The Upper Limit for each succeeding Contract Year is calculated by increasing the Upper Limit for the preceding Contract Year by an amount which is derived by multiplying the initial Monthly Lease Charge by the Upper Limit Percent for such succeeding Contract Year.
- 2.6.2 For these calculations the initial Monthly Lease Charge and applicable Upper Limit Percents shall be
 - (a) those announced by IBM prior to the date on which the Supplement or order placing the Machine under the Lease Contract Period is received by IBM as varied by any subsequent change announced by IBM on a date when at least three months remain prior to the scheduled shipment date of the Machine at the date such change is announced;
 - (b) in the case of a new Lease Contract Period entered into under the provisions of the clause entitled "Lease Contract Period Extensions," those announced by IBM before the date three months prior to the Commencement Date of the new Contract Period.
- 2.6.3 If on a date when more than three months prior to the scheduled shipment date of a Machine, IBM gives notice of

increase in the Monthly Lease Charge or in any Upper Limit Percent applying to such Machine the Customer may by written notice to IBM cancel the Supplement or order for the affected Machine within 45 days of such notice by IBM.

- 2.6.4 IBM may increase the Monthly Lease Charge for any Machine upon three months' prior written notice. Such increased Monthly Lease Charge will be the lower of (1) the Monthly Lease Charge generally in effect for such Machine on the effective date specified in the notice for IBM customers commencing a new Lease Contract Period with the same Base Term under the same terms and conditions, and (2) the Upper Limit in effect for that Contract Year and, to the extent that any increased charge exceeds the applicable Upper Limit, the excess will automatically be effective on commencement of ensuing Contract Years.
- 2.6.5 The Upper Limit Percents specified in the Supplement will not be increased during the Lease Contract Period.
- 2.6.6 The Upper Limit Percents for a model upgrade or feature addition will be the same as those for the Machine on which they are installed.
- 2.6.7 The Monthly Use Charge Rate for each Use Plan Machine may be increased by IBM in the same manner and in accordance with the same Upper Limit calculations as Monthly Lease Charges.

2.7 Increases in Charges payable during a Rental Contract Period

IBM may increase the Monthly Rental Charge, Additional Use Charge Rate or Monthly Use Charge Rate for any Machine upon not less than three months' prior written notice. The Customer may discontinue any Machine affected by such increase on the effective date of the increase upon one month's prior written notice.

2.8 Other Charges

The Customer agrees to pay all costs of transportation of the Machines to the Customer's premises, and of their return to a UK location designated by IBM, all costs of special handling and hoisting as well as any Single Use Charges shown on the Supplements.

2.9 Taxes

There shall be added to all charges referred to in this Agreement amounts paid or payable by IBM equal to any taxes or new or increased import or other duties or amounts in lieu thereof however designated, levied or based on such charges or upon this Agreement or upon any Supplement or the Machines or their use excluding however taxes assessed upon profits or gains.

3. Lease Contract Period Extensions

- 3.1 Unless otherwise specified in the relevant Supplement a Lease Contract Period for a Machine may be extended any number of times by a one-year Contract Period Extension and once by a Contract Period Extension for a period of less than one year. The Commencement Date of a Contract Period Extension will be the day following the Expiry Date of the Lease Contract Period or Extension which immediately preceded it.

- 3.2 A Contract Period Extension will not require the signature by the Customer of a new Supplement. A Contract Period Extension for a period of one year will commence automatically unless the Customer before its Commencement Date

(a) by written notice to IBM opts for a Contract Period Extension of less than one year at the end of which the Machines concerned will become subject to the terms conditions and charges applicable to a Rental Contract Period unless otherwise agreed, or

(b) returns to IBM a signed Supplement for a new Lease Contract Period for which the Machines concerned are eligible; or

(c) by written order to IBM places the Machines concerned under a Rental Contract Period to commence upon expiry of the Lease Contract Period or Extension then in effect.

In addition, the Customer may discontinue a Machine effective on the Expiry Date of a Lease Contract Period or Extension (1) as specified in the clause entitled "Discontinuance and Termination" or (2) upon one month's prior written notice if IBM has announced less than five months prior to the Expiry Date changes in charges terms or conditions affecting the Contract Period Extension for such Machine.

- 3.3 During a Lease Contract Period Extension, the Monthly Lease

Charge, and for each Use Plan Machine, the Monthly Use Charge Rate, may be increased by IBM in the same manner and in accordance with the same Upper Limit calculations as during a Lease Contract Period. For these purposes, the initial Monthly Lease Charge, Monthly Use Charge Rate and applicable Upper Limit Percents shall be those announced by IBM three months prior to the Commencement Date of the Extension, and such Commencement Date shall be the start of the Contract Year.

4. Machine Modifications

- 4.0 Field installable model or feature changes may be made to a Machine installed under this Agreement.

4.1 Model Upgrades and Feature Additions

- 4.1.1 Each model upgrade or feature addition to a Machine installed under a Lease Contract Period or Extension may be placed either under that Lease Contract Period or Extension or, if eligible, under a Rental Contract Period.

(a) If placed under the Lease Contract Period or Extension the model upgrade or feature addition will be installed at IBM's applicable Monthly Lease Charge and Monthly Use Charge Rate, if any, then generally in effect for new orders for such model upgrade or feature having the same Base Term as the installed Machine. When a model upgrade is installed the Expiry Date for both the installed Machine and the model upgrade will be adjusted to provide a common Expiry Date which IBM will notify to the Customer.

The model upgrade or feature addition will assume the same Contract Year (but not the same Commencement Date) and the same Upper Limit Percents as the Machine on which it is installed for purposes of determining future increases in the Monthly Lease Charge and any applicable Monthly Use Charge Rate.

(b) If placed under a Rental Contract Period, the model upgrade or feature addition to a Machine which is under a Lease Contract Period or Extension will be installed at IBM's Monthly Rental Charge then generally in effect. For a model upgrade or feature addition to a Plan A Machine, an additional charge, as specified by IBM, will apply in lieu of any Additional Use Charge. For a model upgrade or feature addition to a Use Plan Machine, IBM's applicable Monthly Use Charge Rate then generally in effect will apply. The Expiry Date of the Lease Contract Period or Extension will not be adjusted.

A model upgrade is defined as a model change which results in an increase in the Monthly Lease Charge or Monthly Rental Charge.

- 4.1.2 Each model upgrade or feature addition to a Machine installed under a Rental Contract Period may only be placed under a Rental Contract Period and will be installed at IBM's Monthly Rental Charge, and Additional Use Charge Rate, or Monthly Use Charge Rate, as applicable, then generally in effect.

4.2 Model Downgrades and Feature Discontinuance

The downgrade of a model or discontinuance of a feature prior to the Expiry Date of its Lease Contract Period or Extension will result in a reduced Monthly Lease Charge, and will be subject to the provisions of the clause entitled "Termination Charges."

The downgrade of a model or discontinuance of a feature installed under a Rental Contract Period will result in a reduced Monthly Rental Charge, which will be IBM's Monthly Rental Charge then generally in effect for the remaining Machine. There will be no Termination Charge.

A model downgrade is defined as a model change which results in a decrease in the Monthly Lease Charge or Monthly Rental Charge.

5. Discontinuance and Termination

- 5.1 Subject to the clauses entitled "Increases in Charges Payable during a Rental Contract Period," "Lease Contract Period Extensions," "Termination Charges," and "General" the Customer may (1) discontinue or request a model downgrade of a Machine designated by IBM as a base central processing complex unit upon three months' prior written notice at any time if installed under a Lease Contract Period or Extension or after the end of the first year of installation if installed under a Rental Contract Period, or (2) discontinue or request a model downgrade of any other Machine or discontinue any feature upon

- one month's prior written notice. The actual feature removal or model downgrade may occur after the date of discontinuance.
- 5.2 Subject to the clause entitled "Termination Charges" the Customer, may, at any time, terminate a Lease Contract Period or Extension for any Machine (without discontinuing it) upon one month's prior written notice.
6. **Termination Charges**
- 6.1 The Customer will pay IBM as a Termination Charge upon termination of a Lease Contract Period or Extension for a Machine or upon downgrade of a model, prior to the Expiry Date the lesser of:
- (a) the applicable Termination Charge Percent multiplied by the Remaining Contract Value, or
 - (b) the applicable Termination Charge Months multiplied by the applicable Monthly Lease Charge value at the date of termination or downgrade.
- 6.2 The Remaining Contract Value of a Machine or model downgrade is determined by multiplying its applicable Monthly Lease Charge value at the date of termination or downgrade by the number of months remaining in its Lease Contract Period or Extension.
- The applicable Monthly Lease Charge value of a Machine upon termination will include the Monthly Lease Charge of any feature installed on such Machine at the date of termination or at any time during the three months prior to the date of such termination.
- The discontinuance of a feature from a Machine installed under a Lease Contract Period or Extension will not result in a Termination Charge unless a Termination Charge is subsequently incurred in respect of such Machine during the three months following the discontinuance of the feature.
- 6.3 For these calculations, the applicable Termination Charge Percent and Termination Charge Months will be:
- (a) those announced by IBM prior to date on which the Supplement or order placing the Machine under the Lease Contract Period is received by IBM as varied by any subsequent change announced by IBM on a date when at least three months remain prior to the scheduled shipment date of the Machine at the date such change is announced.
 - (b) in the case of a Contract Period Extension or a new Lease Contract Period entered into under the provisions of the clause entitled "Lease Contract Period Extensions," those announced by IBM by the date three months prior to the Commencement Date of the Contract Period Extension or new Lease Contract Period.
- 6.4 If on a date when more than three months remain prior to the then scheduled shipment date of a Machine IBM gives notice of an increase in the Termination Charge Percent or Termination Charge Months applying to that Machine, the Customer may by written notice to IBM cancel the Supplement or order for the affected Machine within 45 days of notification of such increase by IBM; otherwise such increase will become effective.
- 6.5 Final return of a Machine to IBM either upon the Customer's request during a Lease Contract Period or Extension for any reason, including machine replacement for model or feature changes which are not field installable, or due to the Customer's failure to comply with any of the terms and conditions of this Agreement, shall be a termination for purposes of this Clause 6.
7. **Delivery**
- IBM will schedule each Machine for delivery and update the delivery schedule as necessary in accordance with IBM's applicable shipment sequence. Prior to shipment IBM will make reasonable accommodation to a delay requested by the Customer.
8. **Programming**
- 8.1 The term "Programming" as used in this Agreement shall mean such programming as IBM may make generally available, from time to time, without separate charge, for machines of the same types as those subject to the terms of this Agreement. IBM will furnish such Programming as may be requested by the Customer.
- 8.2 The term "Programming Services" shall mean such services as

- IBM may generally make available without separate charge in connection with Programming. IBM will determine the Programming Services available and their duration.
- 8.3 The terms "Programming" and "Programming Services" do not include programs and services that are available for a separate charge or which are offered under separate written agreements.
9. **Alterations and Attachments**
- 9.1 An Alteration is defined as any change to a Machine which deviates from IBM's physical, mechanical or electrical machine design whether or not additional devices or parts are required. An Attachment is defined as the mechanical, electrical or electronic interconnection to a Machine of non-IBM equipment and devices not supplied by IBM.
- 9.2 An Alteration to a Machine may be made upon prior written notice to IBM. An Attachment to a Machine may be made without notice to IBM.
- 9.3 The Customer agrees to accept the responsibility for making any such Alteration or Attachment, its use and the results obtained therefrom, and to pay all charges related to the Alteration or Attachment as described in the clause entitled "Maintenance Service." The Customer further agrees to remove any Alteration or Attachment and to restore the Machine to its normal, unaltered condition prior to its return to IBM, or upon notice from IBM that the Alteration or Attachment creates a safety hazard or renders maintenance of the Machine impracticable.
10. **Maintenance Service**
- 10.1 IBM will provide maintenance service to keep each Machine in or restore it to good working order and will make all necessary adjustments, repairs and parts replacements. For this purpose, IBM shall have full and free access to the Machine. The Customer agrees to provide a suitable installation environment as specified in the applicable IBM installation manual.
- 10.2 The Customer agrees to pay at IBM's applicable time and material rates and terms then in effect all charges for maintenance and other service activities, or to pay for loss of or damage to a Machine, resulting from (1) use of the Machine other than for the data processing purposes for which it was designed, or (2) Alterations and Attachments.
- 10.3 The Customer also agrees to pay all such charges arising from the use of supplies where these result in abnormal wear, damage to a Machine, or repetitive service calls.
11. **Travel Charges**
- There will be no charge for travel time and expenses associated with maintenance service or Programmings Service under this Agreement except that actual travel time and expenses will be charged for maintenance service under Clauses 10.2 and 10.3 or if Machines are installed in a place where IBM regularly has no personnel trained to provide maintenance service for the Machines or to provide the Programming Services concerned.
12. **Risk of Loss or Damage**
- During the period a Machine is in transit or in the possession of the Customer, IBM and its insurers, if any, relieve the Customer of responsibility for all risks of loss of or damage to the Machine, except for loss or damage (1) caused by nuclear reaction, nuclear radiation or radio-active contamination for which the Customer is legally liable or (2) referred to in the clause entitled "Maintenance Service."
13. **Invoices**
- All charges are payable net within thirty days from date of invoice. Monthly Lease Charges and Monthly Rental Charges will be invoiced in advance on the first of each month. Additional Use Charges and Monthly Use Charges will be invoiced in the month following the month in which they are incurred.
14. **Warranties**
- 14.1 IBM warrants that each Machine will be in good working order on the date that it is installed and that on such date it will conform to IBM's official published specifications. Thereafter IBM will provide maintenance service subject to the provisions of the clauses entitled "Maintenance Service" and "Risk of Loss or Damage."
- 14.2 IBM further warrants that when shipped to the Customer, Programming then designated by IBM for use with a Machine

and for which Programming Services are then available will conform to IBM's official published specifications if properly used on the designated Machine. Thereafter IBM will provide Programming Services subject to the provisions of the clause entitled "Programming".

- 14.3 IBM does not warrant that the functions contained in the Programming will operate in the combinations which may be selected for use by the Customer.
- 14.4 All Programming for which no Programming Services are available is distributed on an "as is" basis without warranty.
- 14.5 IBM does not warrant that the operation of any Machine or Programming will be uninterrupted or error-free or that all Programming errors will be corrected.

15. Patent and Copyright Indemnity

- 15.1 IBM will defend any claim brought against the Customer that any Machine leased or rented hereunder or any Programming furnished hereunder or that the operation of any such Machine under the control of any such Programming infringes a patent, a design registration or copyright in the United Kingdom. IBM will pay those costs and damages finally awarded against the Customer in any action based on any such claim provided that:

- (a) the Customer promptly notifies IBM in writing of any such claim, and
- (b) IBM has sole control of the defence of any such claim and all related settlement negotiations.

If any such claim has occurred, or in IBM's opinion is likely to occur, the Customer agrees to permit IBM, at its option and expense, either to procure for the Customer the right to continue using the Machine or Programming or to modify the same so that it becomes non-infringing or to replace the same by a non-infringing machine or non-infringing Programming. If the foregoing alternatives are not reasonably available to IBM then the Customer agrees to return the Machine or Programming on written request by IBM. No termination charges will be payable on any such returned Machine and the Customer will pay only those charges which were payable prior to the date of return of such Machine.

- 15.2 Notwithstanding the above IBM shall have no obligation to defend any claim brought against the Customer and no liability for any such claim if such claim is based upon:

- (a) the combination, operation or use of any Machine leased or rented hereunder or Programming furnished hereunder with equipment or data not supplied by IBM or with any program other than or in addition to the Programming furnished hereunder, if such claim would have been avoided by use of another program whether or not capable of achieving the same results; or
- (b) the alteration by or under the direction of the Customer of any Machine leased or rented hereunder or Programming furnished hereunder; or
- (c) the use of other than a current unaltered release of any such Programming furnished hereunder if such claim would have been avoided by the use of a current unaltered release of such Programming.

- 15.3 The foregoing states the entire obligation and liability of IBM with respect to infringement of patents, design registrations and copyright by any Machine leased or rented hereunder or any Programming furnished hereunder.

16. Customer Remedies

16.1 Exclusive Remedies

IBM's entire liability and the Customer's sole remedies in respect of any "Default" shall be as set out in this Clause 16. "Default" shall mean any breach of IBM's obligations hereunder or any fundamental breach or breach of a fundamental term of this Agreement or any default, act, omission or statement of IBM, its employees, agents or sub-contractors in connection with or in relation to the subject matter of this Agreement and in respect of which IBM is legally liable to the Customer. This Clause 16 shall not confer rights or remedies on the Customer to which he would not otherwise be legally entitled.

16.2 Personal Injury

IBM does not exclude liability for death or personal injury to the extent that it results from the negligence of IBM, its employees, agents or sub-contractors.

16.3 Property Damage

Subject to Clause 16.7 IBM does not exclude liability for direct physical damage to tangible property of the Customer, to the extent that it is caused by the negligence of IBM, its employees, agents or sub-contractors.

16.4 Damages Remedy

The Customer's remedies (whether in contract or in tort including negligence) against IBM for any Default shall be limited to damages. Such damages shall be subject to the limitations by amount and type specified in this Clause 16. For the purpose of this Clause 16 this Agreement shall include any Supplement or other order accepted under this Agreement.

16.5 Specific Remedies

In respect of any Default relating to a Machine delivered hereunder or to maintenance service, Programming or Programming Services furnished hereunder, IBM's liability for damages shall be limited as follows:

- 16.5.1 IBM shall always be afforded reasonable opportunity to correct any deficiency in the Machine or Programming before being in breach of its obligations under this Agreement. If, in the event of a Default, the Customer thereafter incurs "Expenses" (as defined below) the Customer may recover from IBM damages equal to the amount of those "Expenses."

- 16.5.2 (a) The Customer shall permit IBM to take all reasonable measures to install the Machine in or restore it to good working order and to make the Programming operate (all as warranted) and, at the option of IBM, to substitute or add to the Machines or Programming and to take any other measures as may be necessary in each case to correct a Default.

- (b) If after repeated efforts IBM fails to correct the Default and the Default is material (and in the case of a Programming deficiency, a Machine initially installed with that Programming is thereby rendered functionally inoperative) and as a result the Customer discontinues the affected Machine the Customer may, in addition to damages for "Expenses" as provided in Clause 16.5.1, recover damages equal to the "Set Up Costs" (as defined below).

- 16.5.3 "Expenses" shall mean such costs actually incurred by the Customer as are in excess of the costs that would have otherwise been incurred by him in the absence of any Default provided that such costs are directly caused by the Default and are reasonably and necessarily incurred by the Customer in using the Machine or the Programming or other data processing services or machines used in substitution for or in addition to the Machine or Programming.

"Set Up Costs" shall mean that part of the specific costs of normal preparations for the installation and use of the Machine which have been actually incurred by the Customer and which were reasonably and necessarily incurred by him after acceptance by IBM of the Supplement or order for the Machine provided that such costs are directly related to a Machine in respect of which IBM is liable and which has been discontinued by the Customer, together with costs of transportation, handling and hoisting paid by the Customer in respect of such Machine.

- 16.5.4 IBM shall not be liable for: (1) Expenses, to the extent that IBM affords the Customer a reasonable opportunity to reduce those Expenses by using alternative Machines Programming or Services; (2) Set Up Costs, to the extent that the preparations referred to in Clause 16.5.3 are of use for alternative equipment.

- 16.5.5 IBM shall not be liable for Expenses incurred under Clause 16.5.1 or 16.5.2 after the date:

- (a) on which IBM corrects the Default as provided in Clause 16.5.2(a);
 - (b) on which the Customer discontinues the Machine;
 - (c) twelve months after the date on which IBM became liable for the Default;
- whichever shall first occur.

- 16.5.6 IBM shall in no circumstances be liable for Set Up Costs unless the Default occurs prior to the date twelve months after the installation of the affected Machine.

- 16.5.7 The Customer may discontinue a Machine without payment of termination charges (where appropriate) in the event of any material breach of this Agreement by IBM.

- 16.5.8 IBM's liability under this Clause 16.5 shall be subject to the Limitations in this Clause 16.

16.6 Monetary Limits of Damages

IBM's total liability in respect of any one Default shall not exceed the greater of £75,000 or 12 Monthly Charges. The "Monthly Charges" shall mean those Monthly Lease Charges or Monthly Rental Charges applicable (at the time the Default occurred) to the Machines in respect of which IBM is liable, and in the case of loss or damage arising from or relating to Programming or Programming Services, shall be confined to the Monthly Lease Charges or Monthly Rental Charges applicable to those Machines which (1) are directly related to the portions of the Programming in respect of which IBM is liable, and (2) are rendered functionally inoperative by the Programming deficiency, provided that in no circumstances shall one Machine be included more than once in the calculation of the Monthly Charges applicable to any one Default.

A number of Defaults, whether successive or concurrent, which together result in or contribute to substantially the same loss or damage shall be treated as one Default which for the purpose of determining the Monthly Charges shall be deemed to occur at the date of the occurrence of the last of such Defaults.

The monetary limits set out above shall not apply to any liability on the part of IBM referred to in Clauses 16.2 and 16.3 above nor to cost and damages awards referred to in Clause 15.1.

16.7 Type of Damages Liability

Except as provided in Clause 16.2 in no event shall IBM be liable for the following loss or damage howsoever caused and even if foreseeable by or in the contemplation of IBM.

- (a) Economic loss which shall include loss of profits, business, revenue, goodwill and anticipated savings.
- (b) Damages in respect of special, indirect or consequential loss or damage (other than Expenses, Set Up Costs, or direct physical damage to tangible property of the Customer caused by the negligence of IBM, its employees, agents or sub-contractors).
- (c) Any claim made against the Customer by any other party (save as expressly provided in Clause 15.1).

16.8 Time Limit for Actions

Except in respect of the liability of IBM referred to in Clause 16.2 no action (whether in contract or in tort, including negligence, and regardless of form including arbitration proceedings) arising out of the Agreement or in connection with the Machines, Programming, Programming Services, maintenance or other services of any kind supplied or to be supplied hereunder may be brought by either party more than two years after the party concerned becomes aware or should reasonably have become aware of the facts constituting the cause of action.

16.9 Exclusions

The Machines and Programming have been produced to standard IBM specifications and it is therefore for the Customer to implement his application of the Machines and Programming together with other programs he selects in combination to meet his specific requirements. The Machines and Programming cannot be tested in every possible combination and operating environment.

IBM is unable to represent that their operation will be uninterrupted or error-free. The continuing management and operation of the Machines, Programming and other programs in combination and any changes thereto are under the control of the Customer. Accordingly IBM limits its liability under this Agreement and it is agreed that except as otherwise provided hereunder all conditions, or warranties, express or implied, statutory or otherwise (including, but not limited to any concerning the fitness of any Machine, Programming or Programming Services for a particular purpose) are hereby excluded.

IBM shall not be liable for any loss or damage caused by the Customer's failure to fulfil his responsibilities under this Agreement or arising from any matter under the control of the Customer.

16.10 Application of This Clause 16

The parties expressly agree that should any limitation or provision contained in this Clause 16 be held to be invalid under any applicable statute or rule of law it shall to that extent be deemed omitted but if IBM thereby becomes liable for loss or damage

153 - which would otherwise have been excluded such liability shall be subject to the other limitations and provisions set out above.

17. General

17.1 The Customer shall not assign or otherwise transfer all or any part of this Agreement or assign sublet or transfer any of the Machines without the prior written consent of IBM. Any attempted assignment, sublease or transfer by the Customer without IBM's written consent is void.

17.2 Machines under this Agreement are to be located only in the United Kingdom. The Customer agrees to keep IBM informed of the location of each Machine. All movements of Machines will be by means acceptable to IBM and, if carried out by IBM, at IBM's established transport charges. Each Machine remains the property of IBM and may be removed by IBM at any time after its discontinuance. IBM shall have full and free access to each Machine for this purpose.

17.3 IBM may, upon not less than twelve months' prior written notice to the Customer, discontinue a Machine or downgrade a model under a Rental Contract Period at any time, or under a Lease Contract Period or Extension on its Expiry Date.

17.4 This Agreement may be terminated by either party upon not less than one month's prior written notice following discontinuance of all Machines and fulfilment of all obligations hereunder except that the clauses entitled "Warranty," "Patent and Copyright Indemnity" and "Customer Remedies" will survive any termination.

17.5 IBM may upon twelve months' prior written notice modify the terms and conditions of this Agreement except that IBM may upon three months' prior written notice modify the terms and conditions of the clauses entitled "Charges," "Termination Charges," "Lease Contract Period Extensions" and "Machine Modifications."

Any such modification will apply on the effective date specified in the notice and the Customer will have the option to withdraw from this Agreement on the effective date of such modification without payment of termination charges any affected Machine which was already subject to this Agreement by the date of notice, by providing IBM with one month's prior written notice except as follows:

(a) For any Lease Contract Period or Extension already commenced on the date of notice, modifications shall not become effective before the Expiry Date of such Lease Contract Period or Extension.

(b) If on a date when three months or less remain prior to the then scheduled shipment date of a Machine subject to Lease Contract Period, IBM gives notice of a modification requiring three months' notice, such modification shall not become effective in respect of such Machine before the Expiry Date of such Lease Contract Period.

(c) If on a date when more than three months remain prior to the then scheduled shipment date of a Machine subject to Lease Contract Period, IBM gives notice of a modification requiring three months' notice, the Customer may elect to cancel the Supplement for the affected Machine within 4 days of notification of such modification by IBM.

(d) For a Lease Contract Period Extension or new Lease Contract Period referred to in the clause entitled "Lease Contract Period Extensions" any modification requiring three months' notice shall not become effective before the Expiry Date thereof unless announced by IBM before the date three months prior to the Commencement Date of the Lease Contract Period Extension or new Lease Contract Period.

17.6 Except as otherwise provided herein this Agreement or any Supplements can only be modified by a written agreement duly signed by persons authorised to sign agreements on behalf of the Customer and of IBM, and variance from the terms and conditions of this Agreement and any Supplements in any Customer order or other written notification will be of no effect.

17.7 For the purposes of this Agreement, any day from Monday to Friday inclusive other than a public holiday shall constitute "business day."

17.8 If any provisions, or portions thereof, of this Agreement are held to be invalid under any applicable statute or rule of law, they are to that extent to be deemed omitted.

17.9 All disputes arising out of or relating to this Agreement shall be referred to the arbitration of two persons (one to be appointed by IBM and one by the Customer) or their Umpire in accordance

with the provisions of the Arbitration Act 1950 (or any statutory amendment or re-enactment thereof).

17.10 This Agreement shall be governed by the laws of England.

17.11 The Customer agrees that this Agreement is the complete and

exclusive statement of the agreement between the parties, which supersedes all proposals or prior agreements oral or written, and and all other communications between the parties relating to the subject matter of this Agreement.

Signed for and on behalf of
(Name of Customer)

by

Authorised signatory

Title

Date

Signed for and on behalf of
IBM United Kingdom Rentals Limited

by

Authorised signatory

Title

Date

General Systems Division
IBM United Kingdom Limited
PO Box 41, North Harbour, Portsmouth PO6 3AU

Customer Name

(hereinafter called "the Customer")

Address

Customer No.

Branch Office No.

Agreement No.

(hereinafter called "the Referenced Agreement")

Supplement No.

Supplement Modification No.
(if applicable)

THE CUSTOMER AGREES THAT THE REFERENCED AGREEMENT AND THIS SUPPLEMENT ARE THE COMPLETE AND EXCLUSIVE STATEMENT OF THE AGREEMENT BETWEEN THE PARTIES WHICH SUPERSEDES ALL PROPOSALS OR PRIOR AGREEMENTS, ORAL OR WRITTEN, AND ALL COMMUNICATIONS BETWEEN THE PARTIES RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT AND THIS SUPPLEMENT.

The Machines listed overleaf are hereby made subject to the referenced Agreement for Lease or Rental of IBM Machines

Date received by IBM

Customer Signature

Location Received

Official Title of Signatory

Manager's Signature

Date of Signature

Accepted by IBM United Kingdom Rentals Limited:
Authorised Signatory

Date of Signature

General Systems Division
IBM United Kingdom Limited
PO Box 41, North Harbour, Portsmouth PO6 3AU

Customer Name

(hereinafter called "the Customer")

Address

Customer No.

Branch Office No.

*Composite, enabling one
signature to cover all
contracts, schedules, etc.*

IBM United Kingdom Limited on its own account, and where appropriate on behalf of IBM United Kingdom Rentals Limited, and the Customer by signature hereof execute the following individual Standard Agreements attached hereto:

Title of Standard Agreement

Form Number

Agreement Number

For Head Office
use only.

This Composite Signature Agreement is merely an instrument of signature with the sole purpose of simplifying the procedure of signature of the individual Standard Agreements enumerated above. It is not intended to have, nor shall it have, any legal effect other than to constitute in lieu of separate individual signatures, the valid and binding signature of each and every one of said individual

Standard Agreements. The effective date of each Standard Agreement above shall be the date of IBM's acceptance of this Composite Signature Agreement. In every other respect said Standard Agreements shall be and remain legally independent from one another as if each had been signed separately and individually.

Signed for and on behalf of
(Name of Customer)

Signed for and on behalf of
IBM United Kingdom Limited

by

by

Authorised Signatory

Authorised Signatory

Title

Title

Date

Date

D3: OPD CONTRACTS

- Agreement for Sale

| | |
|--|------------------|
| Name (hereinafter called "the Customer") | Agreement Number |
| Address | |

The Customer agrees to purchase, and IBM United Kingdom Limited (hereinafter called "IBM") by acceptance of this Agreement agrees to sell, on the terms and conditions which follow, the machines and features (hereinafter called "machine" or "machines") listed below.

[illegible]

1. Prices

(a) The prices overleaf are those currently in effect and shall not be increased nor shall any deduction be made from such prices for any reason whatsoever except as expressly provided in this Agreement.

(b) If IBM's established price for any machine upon the date of delivery shall be lower than the price for such machine listed overleaf the Customer shall have the benefit of the lower price.

(c) The prices overleaf may be increased by IBM at any time before delivery in which event the customer may by prior written notice to IBM terminate this Agreement in toto or with respect to the machine or machines for which the price has been increased; otherwise the increase shall become effective.

(d) The prices overleaf are ex-IBM's United Kingdom factories or warehouses. All costs of transportation to the Customer's premises and costs of insurance or special handling will be paid by the customer.

(e) The customer agrees to pay amounts equal to any taxes (including Value Added Tax), paid or payable by IBM charged on the sale of machines or supply of services under this Agreement or on the Agreement, excluding however taxes assessed upon profits.

2. Title

Title to each of the machines is to remain vested in IBM until the full purchase price thereof and transportation and special handling or hoisting charges shall have been paid. Failure to pay the purchase price or the above mentioned charges for transportation, handling and hoisting when due shall give IBM the right to take possession of the machines with or without notice and without liability and, at its option, to avail itself of any other legal remedy in addition to repossessing the machines. The Customer agrees to pay IBM's costs and expense of collection and/or repossession. The risk of loss or damage shall be upon IBM until installation of the machines except for loss or damage caused by nuclear reaction, nuclear radiation or radioactive contamination or by the negligence of the Customer. Thereafter, the risk or loss or damage shall be upon the Customer.

3. Delivery

All times specified by IBM for delivery and installation of the machines are estimates only. IBM will endeavour to comply with such dates but shall not be liable for delay or for any damage or inconvenience sustained by the Customer as a result of such dates not being met.

4. Transport

The method of delivery to the Customer's premises will be determined by IBM and the Customer shall pay IBM's established delivery charges in accordance with Clause 1 (d) of this Agreement.

5. Installation

Machines purchased under this Agreement shall be installed and placed in good working order by IBM without additional charge. The Customer shall make available a suitable place of installation with all facilities specified in IBM's Installation Manual and instructions or as otherwise notified in writing by IBM. The Customer shall furnish, if required by IBM, all labour required for unpacking and placing machines in the desired location. For all equipment shown on this agreement, the date on which IBM notifies the Customer in writing that the equipment is in good working order, and is ready for use, shall be the date of installation of the equipment for all purposes of the Agreement.

6. Warranty

(a) IBM will keep the machines in good working order and will make all necessary adjustments, repairs and replacements on an exchange basis, under which replaced parts become the property of IBM, without charge upon the Customer's request, for a period of ninety (90) days from the date of installation thereof, provided that such adjustments repair or parts replacement, are not required because of accident, neglect, misuse, failure of electric power or air conditioning, humidity control, transportation or causes other than ordinary use.

(b) In addition, IBM warrants the machines to be free from defects in material and workmanship (except vacuum tubes, crystal diodes or transistors).

IBM's obligation in this respect is limited to furnishing on an exchange basis replacements for parts of the equipment

shown on this Agreement, provided that all such parts have been promptly reported by the Customer as having been in his opinion, defective and are on inspection by IBM found to be defective. IBM's obligation under this sub-clause 6 (b) shall cease one year from the date of installation of each machine.

(c) Service in accordance with the terms of this warranty will be furnished by IBM's nearest competent service office during IBM normal business hours, Monday to Friday inclusive, except Public Holidays. IBM shall have full and free access to the machines to perform service thereon. Unless the machines are installed in a place in which IBM has maintenance representatives, the Customer agrees to pay all travelling expenses of such representatives for the maintenance and repair of the machines. At the Customer's prior request, service outside IBM's normal business hours or outside the scope of this warranty will be furnished by IBM subject to availability at its established charges for such service.

(d) IBM shall not be responsible for failure to provide service or parts due to causes beyond its control. IBM shall not be required to adjust or repair any machine or part, if it would be impractical for IBM's personnel to do so because of alterations in the machines or their connection by mechanical or electrical means to other machines or devices or if the machines are installed outside the United Kingdom.

7. Instruction

Instruction in the operation of the machines will be furnished by IBM free of charge to the Customer's employees assigned to operate the machines. A manual of operation will also be supplied by IBM free of charge.

8. Maintenance Service and Parts

IBM will, if requested, provide the Customer with maintenance service for the machines, and the repair and replacement of parts as long as they are generally available on the basis of IBM's established prices, terms and conditions in force at that time.

9. Accessories, Engineering Changes, Cards, Tapes and Supplies

IBM will upon request supply to the Customer at IBM's established prices, terms and conditions in force at the time, such attachments, devices and engineering changes as IBM shall have available for sale and which may be suitable for use on or in connection with the machines. IBM makes no representation that such attachments, devices and engineering changes as may be announced in the future will be suitable for use on or in connection with these machines. IBM will also supply to the Customer, upon request, at IBM's established prices, terms and conditions in force at the time, cards, tapes and other supplies used in the operation of the machines as long as IBM has them available for sale.

10. Patent and Design Registration Indemnity

10.1 IBM will defend any claim brought against the Customer that any Machine furnished hereunder, or that the operation of any such Machine pursuant to operating instructions provided by IBM for such Machine, infringes a patent or design registration in the United Kingdom.

The Customer agrees to notify IBM promptly in writing of any such claim, and to permit IBM to have sole control of the defence of any such claim and all related settlement negotiations.

IBM will pay those costs and damages finally awarded against the Customer in any action based on any such claim, whether or not defended by IBM.

10.2 If any such claim as is mentioned in Clause 10.1 occurs, or in IBM's opinion is likely to occur, the Customer agrees to permit IBM then, at its option and expense:

- i either to procure for the Customer the right to continue using the Machine, or
- ii to modify the Machine so that it becomes non-infringing, or
- iii to replace the Machine by a non-infringing machine.

10.3 If, in the circumstances described in Clause 10.2 the alternatives set out in that sub-clause are not available on terms which are reasonable in IBM's judgement, the Customer agrees that IBM shall then have the option, exercisable by a request in writing made to the Customer, to repurchase the Machine. The purchase price of the Machine payable by IBM to the customer

shall be the price paid for the Machine by the Customer to IBM less depreciation. The depreciation shall be an equal amount per year over IBM's established period of depreciation for that Machine current at the time of signature of this Agreement.

10.4 Notwithstanding the provisions of Clauses 10.1, 10.2 and 10.3 IBM shall have no obligation to defend any such claim as is mentioned in Clause 10.1 and no liability for any such claim if such claim arises from:

- (a) the combination, operation or use of any Machine furnished hereunder with equipment or data not furnished by IBM, or
- (b) the alteration by or under the direction of the Customer of any Machine furnished hereunder, or
- (c) the use of any Machine furnished hereunder with any supplies not furnished by IBM unless such supplies are a substitute for supplies available from IBM at the time of such use and any difference between the supplies is irrelevant to such claim.

11. Copyright

IBM does not authorise such copying of copyright material as would amount to an infringement of copyright in that material.

12. Terms

At any time before delivery of the equipment, IBM shall be entitled to determine this agreement by giving seven days' notice in writing in the event that the purchaser's credit reference are not to IBM's satisfaction.

Invoices will be submitted upon delivery of each machine and are payable within thirty (30) days.

13. Customer Remedies

13.1 Exclusive Remedies

IBM's entire liability and the Customer's sole remedies in respect of any "Default" shall be as set out in this Clause.

"Default" shall mean any breach of IBM's obligations hereunder or any fundamental breach or breach of a fundamental term of this Agreement or any default, act, omission or statement of IBM, its employees, agents or sub-contractors in connection with or in relation to the subject matter of this Agreement and in respect of which IBM is legally liable to the Customer.

This Clause 13 shall not confer rights or remedies on the Customer to which he would not otherwise be legally entitled.

13.2 Statutory Liability

IBM does not exclude liability for death or personal injury to the extent that it results from the negligence of IBM, its employees, agents or sub-contractors, and accepts liability for any breach on the part of IBM of any undertaking as to title, quiet possession and freedom from encumbrance which may be implied by Section 12 of the Sale of Goods Act 1893.

13.3 Property Damage

Subject to Clause 13.7 IBM does not exclude liability for direct physical damage to tangible property of the Customer to the extent that it is caused by the negligence of IBM its employees agents or sub-contractors.

13.4 Damages Remedy

The Customer's remedies (whether in contract or in tort including negligence) against IBM for any Default shall be limited to damages. Such damages shall be subject to the limitations by amount and type specified in this Clause 13. For the purpose of this Clause 13, this Agreement shall include any order accepted under this Agreement.

13.5 Specific Remedies

In respect of any Default relating to a Machine delivered hereunder and occurring prior to the end of its Warranty Period, or to Warranty Service, IBM's liability for

damages shall be limited as follows:

13.5.1 The Customer shall give IBM written notice of any Default (as defined in Clause 13.1 above) and shall thereafter allow to IBM every reasonable opportunity to correct the Default. If after a reasonable time, IBM fails to correct the Default and the Customer thereafter incurs Expenses (as defined below) the Customer may recover from IBM damages equal to the amount of those Expenses.

13.5.2a) The Customer shall permit IBM to take all reasonable measures to install the Machine in or restore it to good working order as warranted, and at the option of IBM to substitute or add to the Machine and to take such other measures as may be necessary in each case to correct a Default. b) If, after repeated efforts, IBM fails to correct the Default and the Default is material and the Customer has as a result ceased permanently to use the affected Machine, the Customer may, in addition to damages for Expenses as provided in Clause 13.5.1 recover from IBM damages equal to Set Up Costs (as defined below) and other damages not exceeding the Purchase Price (as defined below).

13.5.3 "Expenses" shall mean such costs actually incurred by the Customer as are in excess of the costs that would have otherwise been incurred by him in the absence of any Default provided that such costs are directly caused by the Default and are reasonably and necessarily incurred by the Customer in using the Machine or other machines used in substitution for or in addition to the Machine.

"Set Up Costs" shall mean that part of the specific costs of normal preparations for the installation and use of a Machine which have been actually incurred by the Customer and which were reasonably and necessarily incurred by him after signature by IBM of this Agreement provided that such costs are directly related to a Machine in respect of which IBM is liable and which the Customer has ceased permanently to use, together with costs of transportation, handling and hoisting paid by the Customer in respect of such Machine.

The "Purchase Price" shall be that invoiced to the Customer (or, in the event that the Machine has not yet been invoiced to the Customer, the price which would be payable by the Customer in accordance with the terms of Clause 1) for the Machines in respect of which IBM is liable.

13.5.4 IBM shall not be liable for i) Expenses to the extent that IBM affords the Customer a reasonable opportunity to reduce those Expenses by using alternative Machines, or Services. ii) Set Up Costs, to the extent that the preparations referred to in 13.5.3 are of use for alternative equipment.

13.5.5 IBM shall not be liable for any Expenses incurred under Clauses 13.5.1 or 13.5.2 after the date:

- i) on which IBM corrects the Default as provided in Clause 13.5.2(a).
- ii) twelve months after the date on which the Customer first notified IBM of the Default.

whichever shall first occur.

13.5.6 IBM shall in no circumstances be liable for Set Up Costs unless IBM is notified of the Default before the end of the Warranty Period of the affected Machine.

13.5.7 IBM's liability under this Clause 13.5 shall be subject to the limitations in this Clause 13.

13.6 Monetary Limits of Damages

IBM's total liability in respect of any one Default shall not exceed the greater of £15,000 or 125 per cent of the Purchase Price as defined above.

A number of Defaults, whether successive or concurrent, which together result in or contribute to substantially the same loss or damage shall be treated as one Default which for the purpose of determining the Purchase Price shall be deemed to occur at the date of the occurrence of the last of such Defaults.

The monetary limits set out above shall not apply to any liability on the part of IBM referred to in Clause 13.2 and 13.3 above nor to cost and damage awards referred to in Clause 10.1.

13.7 Type of Damages Liability

Except as provided in Clause 13.2 in no event shall IBM be liable for the following loss or damage howsoever caused and even if foreseeable by or in the contemplation of IBM:

1. Economic loss which shall include loss of profits, business, revenue, goodwill and anticipated savings.
2. Damages in respect of special, indirect or consequential loss or damage (other than Expenses, Set Up Costs, or direct physical damage to tangible property of the Customer caused by the negligence of IBM, its employees, agents or sub-contractors).
3. Any claim made against the Customer by any other party (save as expressly provided in Clause 10.1).

13.8 Time Limit for Actions

Except in respect of the liability of IBM referred to in Clause 13.2 no action (whether in contract or tort, including negligence, and regardless of form including arbitration proceedings) arising out of the Agreement or in connection with the Machine, warranty or other services of any kind supplied or to be supplied hereunder may be brought by either party more than two years after the party concerned becomes aware or should reasonably have become aware of the facts constituting the cause of action.

13.9 Exclusions

The Machine has been produced to standard IBM specifications and it is therefore for the Customer to implement his application of the Machine to meet his specific requirements.

IBM is unable to represent that the operation of the Machine will be uninterrupted or error-free. The continuing management and operation of the Machine is under the control of the Customer. Accordingly IBM limits its liability under this Agreement and it is agreed that except as expressly set forth in this Agreement, all conditions or warranties, express or implied, statutory or otherwise (including, but not limited to any concerning the fitness of any Machine for a particular purpose) are hereby excluded. This Clause 13.9 shall not exclude the undertakings implied by Section 12 of the Sales of Goods Act 1893.

IBM shall not be liable for any loss or damage caused by the Customer's failure to fulfill his responsibilities under this Agreement or arising from any matter under the control of the Customer.

13.10 Application of this Clause 13

The parties expressly agree that should any limitation or provision contained in this Clause 13 be held to be invalid under any applicable statute or rule of law it shall to that extent be deemed omitted but if IBM thereby becomes liable for loss or damage, which would otherwise have been excluded such liability shall be subject to the other limitations and provisions set out above.

14. General

This Agreement shall be governed by the Laws of England and constitutes the entire agreement between the Customer and IBM with respect to the purchase and sales of the machines and no representation or statement not contained in this Agreement shall be binding on IBM as a warranty or otherwise. No waiver, alteration or modification of the foregoing terms and conditions shall be valid unless made in writing on or after the signing of this Agreement and approved by an authorised signatory of the Head Office of IBM. The foregoing terms and conditions shall prevail notwithstanding any variance with the terms and conditions of any order submitted by the Customer in respect of the machines. This Agreement is effective from the date it is approved by an authorised signatory of Head Office on behalf of IBM

Signed for and on behalf of

(Customer)

by

Title

Date

Signed for and on behalf of
IBM United Kingdom Limited

by

Title

Date

APPENDIX E: GLOSSARY

APPENDIX E: GLOSSARY

KEY (1) D = DPD, G = GSD; O = OPD

| TERM (or ABBREVIATION) | DEFINITION | RELEVANT DIVISIONS CODE (1) |
|--|--|-----------------------------|
| PROGRAMMING SERVICES PROGRAM SERVICES | IBM's maintenance and support services for software. | D G |
| PROGRAMMING SERVICE CLASSIFICATION | The types of service in force from time to time. | D,G |
| SUPPORT CENTRE | The new telephone answering centre available as first contact for fault correction as a non-billable part of the services. | D |
| LOCAL PROGRAM SUPPORT | The new billable service provided by local software CEs. | D |
| DESIGNATED CPU | The equipment, not necessarily of IBM manufacture, on which a Licence to run a Program is granted. | D |
| CUSTOMER SERVICE MACHINE | The IBM equipment on which Local Program Support is provided to Program Products. | D |
| S C P (System Control Programming) | The basic sections of an Operating System, including the executive kernel. | D |
| L P (Licensed Program) | Any software product issued by IBM for a monthly license charge except FDP, CGP, IUP. | D,G |
| PROGRAM PRODUCTS | A generic term for items of software developed by IBM, often taken to include SCPs and LPs. | D,G |
| LICENSE CHARGE | The charge raised by IBM for the use of a software product. | D,G |
| PROBLEM DETERMINATION | Deciding whether a fault is in hardware or software. | D |
| PROBLEM SOURCE IDENTIFI- CATION | Deciding in which software product/module a fault lies. | D |
| SERVICE UPDATE | Issue by IBM of a new software library incorporating corrected versions of products with reported faults. | D |

| TERM | DEFINITION | RELEVANT DIVISIONS |
|---|---|--------------------|
| APAR (Authorised Programming Analysis Report) | The formal written report of an acknowledged software fault. | D |
| PTF (Program Temporary Fix) | A correction for a fault in an individual product, issued on a temporary basis prior to its permanent correction in a Service Update. | D,G |
| ALPS (Agreement for Local Program Support) | An Agreement for Local Support of SCPs. | D |
| ALPS (Agreement for Local Licensed Program Support) | An Agreement for Local Support of LPs. | D |
| PROBLEM DIAGNOSIS | Pinpointing the exact cause of a fault once the failing component has been identified. | D |
| VERIFICATION | Checking that a Program Product after installation functions correctly | D,G |
| PRESCRIBED PERIOD | The period within which the customer must install a Service Update. | D,G |
| TESTING PERIOD | A period during which an LP is issued for non-productive use to permit a user to check its suitability. | D,G |
| PITA (Pre-Installation Test Allowance) | Free allowance of machine time for testing user-developed programs on IBM - owned equipment. | D |
| CURRENT RELEASE | The latest issued version of a software product which becomes 'current' after the Prescribed Period. | D,G |
| MAINTENANCE CHARGES | IBM's charges for Local Program Support under ALPS or ALLPS. | D |
| FDP (Field Developed Program) | A program developed for a user by IBM and later issued generally as a Licensed Program | D |
| CGP (Country Generated Program) | A program developed by IBM for issue on a country wide basis under special Licence. | D,G |
| IUP (Installed User Program) | A program developed by a user and later issued with limited support by IBM. | D,G |
| LICENCE | Permission to use a Program Product under a Licence Agreement, on a Designated CPU. | D,G |

| TERM | DEFINITION | RELEVANT DIVISIONS |
|---|---|--------------------|
| CENTRAL SERVICE CENTRAL PROGRAMMING SERVICE | Facilities for problem correction and issue of corrected code, provided by IBM as a common service. | G D |
| LOCAL SERVICE | Facilities provided by local CE/SEs for problem correction for an individual customer. | G |
| LOCAL ASSISTANCE | Similar to Local Service, but subject to availability of personnel and implying customer involvement in the activity. | G |
| DESIGNATED MACHINE | IBM equipment for which Service has been agreed under a Licence Agreement. | G |
| INSTALLATION LICENCE | "..Applies" extends a Licence to any other machine in the same suite of computer rooms. | G |
| LOCATION LICENCE | "..Applies" extends a Licence to any other machine on the same customer site. | G |
| LICENSED PROGRAM MATERIAL | A generic term including the Licensed Program and any documentation provided with it, whether an integral part of its issue medium, or separate and optional. | G |
| WARRANTY | Implies that an LP will conform to its issued specifications. | D,G |
| CONTROL PROGRAMMING | An Operating System (e.g. SSP for System /34). | G |
| SPECIAL PROGRAM | A program product subject to a contract amendment for Special Programs e.g. CGP. | D |
| CHARGING PROCEDURE | IBM's method of charging for Licensed Programs. | D,G |
| MONTHLY CHARGE | A charge for a Licensed Program raised by invoice each month; it may require a fixed number of consecutive payments before being discontinued, or be continuous during the lifetime of the Licence. | D,G |
| SINGLE CHARGE ONE-TIME CHARGE | A single payment for a Licence raised at the beginning of that Licence. | D G |
| INITIAL CHARGE | A single payment raised at the beginning of a Licence in addition to monthly charges. | D,G |

| TERM | DEFINITION | RELEVANT DIVISIONS |
|---|--|-----------------------|
| PROCESS CHARGE | A single, usually nominal, charge made for preliminary delivery of documentation or for a licence for a CGP. | D,G |
| REFRESH | The GSD equivalent of a Service Update. | G |
| PRPQ (Program Request for Price Quotation) | A program which has been specially developed, or individually customised, by IBM and is then made available and, perhaps, maintained centrally, under licence. | G |
| SERVICE | The equipment maintenance function. | O |
| SE (Systems Engineer) | The member of the marketing team responsible for sales support and/or application product assistance. | D,G |
| CE (Customer Engineer) | The local member of the Field Engineering function responsible for hardware or software product servicing but not both. | D,G |
| MSR (Market Support Representative) | The member of the marketing team responsible for sales support. | O |

APPENDIX F: SUMMARY OF IBM PROGRAMMING SERVICES

IBM PROGRAMMING SERVICES FOR CLASS 1 SYSTEM
CONTROL PROGRAMMING ON IBM MACHINES, PROGRAM
SERVICES FOR DESIGNATED IBM LICENSED PROGRAMS
AND LOCAL PROGRAM SUPPORT

All IBM System Control Programming is classified as either Class 1 or Class 2.

The purpose of this bulletin is to summarize the way in which IBM will provide services and local support for current releases of Class 1 System Control Programming on IBM machines for which it is announced ("SCP") and for current releases of Designated IBM Licensed Programs ("LPs")

1. NON-BILLABLE SERVICES

IBM will offer, at no additional charge

- a) Installation Planning
- b) Problem Correction Activities

These include processing Authorised Programming Analysis Reports (APARS), defect correction and distribution of Program Temporary Fixes (PTFs).

- c) IBM Support Centre Assistance

If problems occur, the Centre is the first point of contact with IBM for Customers. The Centre will provide assistance over the telephone. However, before calling the Centre, the Customer is expected to have performed Problem Determination and Problem Source Identification activities, as appropriate. ("Problem Determination" is deciding whether a malfunction arises from hardware or from software. Assistance in problem determination is provided as part of the maintenance coverage by IBM for IBM machines which have been purchased or which are under rental or lease from IBM. "Problem Source Identification" is determining the source of a suspected software problem).

Centre personnel will help Customers to identify problems and determine if corrections are available. The Centre will assist Customers in their selection and application of PTFs and Service Updates supplied to them by IBM. If a problem has not been previously identified, the Centre will assist Customers to prepare APARS. APARS will be accepted directly from Customers after problems have been discussed with the Centre.

2. RELIABLE LOCAL PROGRAM SUPPORT

If the Customer cannot resolve a problem or define it for APAR submission despite having discussed it with the IBM Support Centre, the Centre will, if agreed by the Customer, arrange to dispatch an IBM representative to assist the Customer in the resolution of the problem. This Local Program Support is available either at the applicable hourly rate or, as appropriate, under the "Agreement for Local Program Support for System Control Programming on IBM Machines" (ALPS) or the "Agreement for Local Licensed Program Support for IBM Licensed Programs" (ALLPS) for a monthly charge. Under both agreements a machine designated by the Customer as one on which Local Program Support will be provided is called a Customer Service Machine. Under ALPS the Customer obtains Local Program Support for all "SCP" running on a Customer Service Machine. Under ALLPS, the Customer obtains Local Program Support for all eligible "LPs" running on a Customer Service Machine. If the Customer wishes to have Local Program Support for fewer than all eligible LPs on that machine he may submit a request for price quotation to delete any program from the Agreement. Local Program Support is optional for "LPs" during their applicable testing period.

3. MAIN PROVISIONS OF ALPS AND ALLPS

a) Local Program Support Activities

The Customer receives assistance from IBM when required,

- . with Problem Diagnosis ("Problem Diagnosis" is the pinpointing of the exact cause of a problem once the failing software component has been identified).
- . in preparing and submitting APARs
- . in applying a local fix, or bypass
- . for problems associated with applying Service Updates.

ALPS also provides for assistance in Problem Source Identification.

b) Local Program Support For Multiple Machines

Local Program Support may be obtained by a Customer on a Customer Service Machine for problems arising with "SCP" on that machine and on a number of other, additional machines. The same facility is available for "LPs" provided they are the same as those used on the Customer Service Machine.

This Local Program Support is available within a Customer enterprise for additional machines located only in the same country as the Customer Service Machine.

c) Customer Responsibilities

The Customer will be required to apply Service Updates to his "SCP" and "LPs" within a prescribed period and will be asked to take actions recommended by the IBM Support Centre before an IBM representative is sent to his installation. If it is discovered that a correction exists for a reported problem, the Customer will be expected to apply this correction before the dispatch of an IBM representative.

Where the Customer is receiving Local Program Support for multiple machines he may be asked to recreate problems on the Customer Service Machine.

(Note that the installation and verification of "SCP" and "LPs" are not the subject of either agreement and remain a Customer's responsibility.)

d) Term

There is an Initial Support Period of twelve months for Local Program Support under each of the Agreements. With some exceptions, a termination charge will apply if the Customer discontinues Local Program Support within the Initial Support Period. Thereafter, Local Program Support may be discontinued upon 30 days written notice to IBM.

After the Initial Support Period, the Customer may extend Local Program Support for additional twelve month periods (Program Support Extension Periods) at the then current monthly charges. With some exceptions, a termination charge will apply if the Customer discontinues Local Program Support during a Program Support Extension Period.

e) Charges

Local Program Support is subject to monthly charges for each Customer Service Machine and to lower monthly charges for each additional machine if the Customer has elected to take the multiple machine support option. Charges for "SCP" support depend upon the machine on which the "SCP" runs. The charge for "LPs" is the sum of the monthly support charges for individual "LPs" run on that machine.

IBM can change monthly charges on three months' notice but increases announced during an Initial Support Period or during a Program Support Extension Period will not take effect during such periods.

Additional charges, at current hourly rates, may be made if additional Local Support effort results from altered "SCP" or "LPs"; if the Customer fails to meet his obligations under an Agreement; or if Local Program Support activities are caused by problems originating from machines not covered by an Agreement.

APPENDIX G: PRODUCT BRIEFS

IBM System/34

Distributors Management Accounting System II

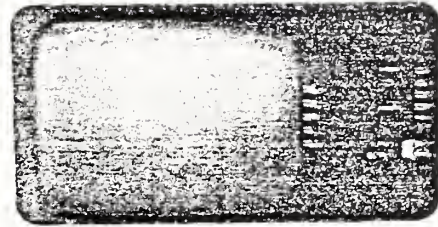
The Distributors Management Accounting System II (DMAS II), is a set of independent yet interrelated applications intended for use in a company's distribution function. The following DMAS II application modules are available as Country Generated Programs (CGPs) and are designed for use on System/34.

| | |
|---------------------------|----------|
| Order Entry and Invoicing | 5797 QFN |
| Stock Control | 5797 QFP |
| Sales Ledger | 5797 QFQ |
| Sales Analysis | 5797 QFR |

DMAS II offers the user a comprehensive set of functions, many of which may be selected at the time the program is being installed.

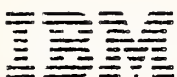
DMAS II functions are of prime importance in helping the user manage two significant business assets — his stocks and his sales ledger, and provide him with profit performance data on his products, customers and salesmen. In addition, these CGPs can help companies to improve operational efficiency and customer service levels.

The online order entry facility — with automatic stock allocation and backorder generation, plus automatic pricing and discounting methods — can help to improve order processing speed and accuracy. Stock Control provides information for buyers to help optimise stock investment by identifying obsolete, slow moving and unprofitable items — and can contribute to the attainment of higher stock turn and service levels. Automatic credit limit checking at order entry, open-item and balance-forward accounting, online cash posting, overdue notice and aged statement production provide aids to control bad debt losses and to improve cash flow. Daily, monthly, and on-demand sales reports help monitor the achievement of a company's sales objectives.



System Highlights

- Online data entry is designed for simplicity and ease of use. Screen displays provide guidance for mandatory input and for fields that may be overridden. Static data from master files simplifies customer and item verification. Error messages signal errors which may then be corrected interactively by the user. Multiple interactive display stations may operate concurrently on different jobs. Several workstations can be used for order entry, while others may be used for posting payments or entering stock receipts. All of this can occur while a batch job is running in the background.
- Enquiries into data in customer, item and order files may be made concurrently with data entry.
- Each application may be installed separately (although Sales Analysis depends upon the other applications for input).
- Application options may be selected, depending on the type, at installation time, run time, or by overriding standard data during data entry. Files may be resized as necessary to accommodate growth. Warning messages signal when files are approaching their capacity.
- Data entry from diskettes keyed on a 3740 Data Entry System is provided for.



Individual Program Highlights

Order Entry and Invoicing

- The user may choose either pre-invoicing or post-invoicing methods.
- Available stock balance is dynamically maintained and allocated in line to orders as they are entered or released (provided that the Stock Control application is also installed).
- If, at the time an order is being entered, a customer's balance has already reached or exceeded 90% of his credit limit, a warning is displayed (provided that the Sales Ledger application is also installed).
- A user entering an order may have a picking list or invoice printed immediately, in warehouse location sequence if desired.
- Orders may be entered for customers or items not on file.
- Pricing methods include discount from list price, or markup from base price, item quantity discounts, contract prices, price selection according to a customer code, or manually entered override prices.
- Backorders may be written automatically to the open order file.

Stock Control

- Online updating facility of available stock balances as goods are received provides immediate availability to orders being entered.
- A stock status report and a variety of analytical reports can identify fast and slow moving items and provide other stock movement data to assist in the buying process to help optimise stock investment and customer service.
- Stock balances are maintained separately for multiple warehouses.
- Average cost and last (replacement) cost methods.
- Stock lists in different sequences can assist in physical stock taking.
- Economic Order Quantity (EOQ) and Order Point calculation.

Sales Ledger

- Balance-forward or open-item accounting is selectable for each account.
- Cash application to open-item accounts is simplified because the user can display unpaid invoices. As a payment is applied to each invoice, a code determines how cash discount and partial payment should apply, and the cash amount is decremented. This means a user can rapidly post cash by entering the customer number, total payment and for each invoice, one of six codes.
- Four periods of ageing (in addition to future ageing)
- Aged Trial Balance can optionally be produced in salesman sequence.
- Overdue notices can be printed.
- Statements may be produced with returnable remittance slips and optionally printed in salesman sequence.
- Consolidated company support allows sales ledger activity, cash application, and statement production to be handled by either branch or head office.

Sales Analysis

- Sales Analysis reports answer questions like:
 - What is selling and what is not selling?
 - Which profitable items should be promoted and which unprofitable ones should be dropped?
 - Which customers are profitable?
 - Which customers need more or less attention?
 - Which salesmen are effective and profitable?
- Daily sales are shown by customer within salesman.
- Monthly sales reports are sequenced by:
 - Item.
 - Item within Item Class.
 - Item Class within Customer within Salesman.
 - Customer.
 - Customer within salesman.
 - Salesman.
- Comparison of sales figures for this period and year-to-date with those for the same period and year-to-date last year - on salesman, customer and item reports. These reports are also available on demand.
- Provision for 13-period year.

Programming Service Classification

CGP

Test Period

30 Days

Publications

The following program support documentation will be available.

IBM System/34 DMAS II

| | UK Form | Available |
|--|-----------------|-----------|
| - Design Objectives | 45-7642 | Now |
| - Functional Specifications | 45-7643 | 28.4.78 |
| - Application General Information Manual | 45-7644 | Now |
| - Application Reference Manual | 45-7645 | 28.2.78 |
| - Application Logic Manual | 45-7646 | 28.4.78 |
| - Application Installation Guide | 45-7647 | 28.2.78 |
| Runbooks | | |
| - Order Entry and Invoicing | | |
| - Stock Control | to be allocated | 28.4.78 |
| - Sales Ledger | | |
| - Sales Analysis | | |
| Operator Reference Card | | |
| - Order Entry and Invoicing | | |
| - Stock Control | to be allocated | 28.4.78 |
| - Sales Ledger | | |
| - Sales Analysis | | |

System Functions

A comprehensive set of functions is included in the delivered programs. Flexible tailoring procedures enable changes to be made to the file sizes and various application functions to be selected by the user after delivery. Further selection of print detail etc may be made at run time of the relevant procedures. Applications may be installed in any sequence. Sales Analysis receives its input from Order Entry and Invoicing and/or Sales Ledger and/or Stock Control. If these applications are not installed the customer may write his own data entry, edit and correction routines for Sales Analysis. File maintenance and audit procedures are included for each module. A separate constants file is provided to permit maintenance by the user without the need to recompile programs.

Minimum Configuration

- 5430 System Unit with Diskette 1 Drive, 8.6 MB of disk storage and 48K (Model B11) or 64K (Model C11) bytes of main storage depending on the application (see below).
- One 5256 or 5211 Printer.
- One 5251 Display Station (Model 011)

The minimum main storage requirements of the individual applications range from 18K to 35K bytes approximately. To this must be added the main storage requirements of the Systems Support Program Product which ranges from 18K to 22K bytes depending on the configuration. As a general guideline the minimum total main storage capacity should be considered to be:

- 48K for the Sales Ledger, Stock Control and/or Sales Analysis application.
- 64K for the Invoicing application, or Invoicing in conjunction with one or more of the other three applications.

Note also that the size of the main storage required (i.e. 48K or 64K) is affected by:

- the number of DMAS II applications operating concurrently
- the number of workstations operating concurrently on the same or different applications
- any other applications operating concurrently.

Additionally a main storage capacity greater than the minimum required will often provide improved performance.

Prerequisite Programs

Systems/34 Systems Support Program Product (5726-SS1)

System/34 Utilities Program Product (5726-UT1).
System/34 RPG II Program Product (5726-RG1) is required if modifications to the source code are necessary.

Charges

The programs are available at a monthly licence charge. In addition an initial charge will be made. Monthly charges are waived after 12 consecutive payments.

Contact the local GSD Branch Office for current prices.

Installation Licence

The Installation Licence applies to these CGPs.

These CGPs are licenced under the Special Program Amendment to the Licence Agreement for IBM Program Products.

Ordering Information

Order from the local GSD Branch Office using the following program numbers.

| Application | Program Number |
|-----------------------------|----------------|
| System/34 DMAS II | |
| - Order Entry and Invoicing | 5797-QFN |
| - Stock Control | 5797-QFP |
| - Sales Ledger | 5797-QFQ |
| - Sales Analysis | 5797-QFR |

The programs will be supplied on diskettes. These will be provided by IBM and will remain the property of IBM. The user will be required to provide diskettes for backing up the Application System as well as the System Support Program Product and Utilities and the files used by the Application System.

Special Functions

Certain procedures common to all applications are available under the following feature code which should be specified once at the time of initial order for DMAS II irrespective of how many applications are required. The procedures are supplied on diskette which is needed with the first program to be installed.

| | Feature Code |
|-------------------|--------------|
| Special Functions | 7041 |

Program Material

The following licensed material will be provided for each program ordered.

- a) One copy of the Machine Readable Material containing source code.
- b) Two copies of the Runbook.
- c) Two copies of the Operator Reference Card.

In addition for each order of feature 7041 a copy of the unlicensed Application Reference Manual will be provided.

Optional Licensed Material

Application Logic Manual. This may be obtained by specifying the appropriate feature code at the time of the first DMAS II program ordered. The Application Logic Manual covers all four programs and only one feature code should be specified.

| | Feature Number |
|--------------------------------------|-------------------|
| Order Entry and Invoicing (5797-QFN) | 8088 |
| Stock Control (5797-QFP) | 8089 |
| Sales Ledger (5797-QFQ) | 8090 |
| Sales Analysis (5797-QFR) | 8091 |

Program Availability Date

Scheduled availability date from the GSD Delivery Systems Centre for all four programs is:

28 April 1978.

IBM United Kingdom Limited
General Systems Division
28 The Quadrant
Richmond
Surrey TW9 1DW

UK Form 40-7713

Printed in England by
The Basingstoke Press (75) Limited
Basingstoke
Hants

IBM System/34 - 174 - Manufacturing Accounting and Production Information Control System

The System/34 Manufacturing Accounting And Production Information Control System (MAAPICS) is a full function, workstation-oriented set of application solutions intended for use by the manufacturer. A wide range of manufacturing processing requirements is contained in the seven integrated applications which are designed for use on System/34.

| | |
|--------------------------------|----------|
| Order Entry and Invoicing | 5797-QNN |
| Sales Ledger | 5797-QNP |
| Sales Analysis | 5797-QNQ |
| Production Control and Costing | 5726-M41 |
| Inventory Management | 5726-M45 |
| Product Data Management | 5726-M46 |
| Material Requirements Planning | 5726-M4B |

Three other programs designed for use on System/34 and announced under the title General Financial Accounting System (GFAS) can co-reside with MAAPICS applications and certain interfaces are available between GFAS and MAAPICS programs, as referenced under the program sections below.

System/34 GFAS programs consist of:

| | |
|-----------------|----------|
| Payroll | 5797-QPH |
| Purchase Ledger | 5797-QPJ |
| General Ledger | 5726-M47 |

For more information on GFAS programs refer to publication 40-7733.

A further program is designed to be used in conjunction with the MAAPICS programs if required.

Data Collection Systems Support 5726-M4A

For more information on DCSS refer to publication 40-7734



MAAPICS is designed for the manufacturing environment. With ever fluctuating costs, longer lead times, shorter delivery requirements, and increasing pressure for better customer service, the manufacturer's need for increased accuracy and immediate data recall has never been greater. The following features of these applications make them highly attractive to the manufacturing community:

Functional richness, resulting from MMAS and IPICS and continual feedback from the field.

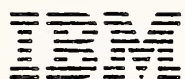
The wide range of applications in the offering extends to the smaller manufacturer production and planning techniques that were previously available only to the larger accounts.

Ease of installation, built on proven CGP techniques. Option selection flexibility is available through system tailoring procedures.

Ease of modification, designed to assist users to make functional additions or cosmetic changes.

The System/34 hardware and system software functions — spooling, inquiry, multiprogramming — are integral parts of the MAAPICS application design.

Complete documentation facilitates faster installation, operator and supervisor education, and efficient operation.



General Systems Division

Licensed Programs

- Workstation data entry is designed for simplicity and ease of use. Screen displays provide guidance for mandatory input and for fields that may be overridden. Error messages signal errors that can then be corrected interactively by the operator.
- The system provides interactive data entry, concurrent edit and correction for multiple applications and multiple terminals, while batch programs operate in the background.
- Online file maintenance of most master files with optional file maintenance reports.
- Inquiry into master files concurrent with data entry.
- Each application may be installed on a standalone basis except for Sales Analysis, Material Requirements Planning, and Production Control and Costing.
 - Sales Analysis requires at least one of the Order Entry and Invoicing, Sales Ledger or Inventory Management applications.
 - Material Requirements Planning requires both Inventory Management and Product Data Management.
 - Production Control and Costing requires Inventory Management (Product Data Management is highly recommended).
- The programs, as delivered, are ready to install and may be run 'as is' without the need for additional user programming. However, individual user needs may require modifications to the programs, and their design incorporates features intended to assist the user with programming capability to modify the source code
- Password security deters unauthorised use of terminals, applications, and functions within applications. A second level of security protects selected master file data.
- Optional system procedures are included for master file backup and restart.
- Control features and documents are included to assist in establishing audit trails.

Application Highlights

The following features or characteristics of the MAAPICS applications are either system designed or can be incorporated through system tailoring procedures:

Order Entry and Invoicing

- Processing support for interactive entry of:
 - Orders for immediate as well as future delivery
 - Blanket orders (a customer order for multiple shipments of a finished product)
 - Standard option for finished products (predefined product features which describe the finished product more fully)
 - Order changes
- Credit limit checking
- User assigns item discount or markup percentages (up to six), VAT rate, quantity break percentages (up to five), trade and cash discount percentages (up to five), with keyed override allowed for each order.
- Customer contract pricing by contract number and item number

- Customer orders that are new or have quantity changes are flagged to facilitate net change processing by the Material Requirements Planning application.
- Prints order acknowledgement, normally used to notify customers of receipt of order.
- Prints picking list by warehouse, with items in location sequence. May be printed at entry time or prior to the picking/shipping cycle.
- Prints basic customer information on a pre-printed dispatch note.
- Prints picking lists and dispatch notes on the system printer or any terminal printer.
- Immediate access to current information, such as:
 - All orders for a particular item
 - Details for a particular order (including blanket order release information)
 - Customer status.
- Post-billing approach to invoicing, with two invoice formats to fit standard window envelopes.
- Automatic creation of back order records (if item is not shipped or is partially shipped) based on customer master record code and an override entry.
- On-Request reporting showing:
 - Open orders or back orders by date, item, or customer
 - Blanket order status
 - Monthly commission worksheet
 - Monthly general ledger worksheet.
- The Tax Register will be optionally provided by Branch (Warehouse). Invoice taxes and credit note taxes will appear as separate figures by each tax category as well as month-to-date totals by each tax category.
- The Invoice Register will show amounts of exempt and non-taxable line items as a total.
- Supports up to 20 companies.
- Interfaces to Inventory Management, Sales Ledger, and Sales Analysis if installed. Requires Product Data Management to handle standard options for finished products.

Sales Ledger

- Supports both balance-forward and open-time customers.
- Provides aged monthly statements and overdue notices.
- Purges paid items daily or monthly.
- Accepts billing data from the Order Entry and Invoicing application or keyed directly from invoices.
- Prints aged trial balance (with multiple printing options).
- The aged trial balance and statements will optionally be available in salesman sequence.
- Calculates service charges for balance-forward or open-item accounts, if required.
- Offers four ageing periods plus current period.
- Updates files used by Sales Analysis.

- Provides two statement formats.
- Online posting of cash and adjustment transactions.
- Interfaces with General Ledger for cash and adjustments.
- Additional statement printing options including standard window envelope support.
- Ages unapplied cash and adjustments.
- Supports up to 20 companies.
- The consolidated statement feature will allow for cash receipts applied to the Head Office.
- VAT identified on statements

Inventory Management

- Provides inventory transaction entry, edit, and posting.
- Prints stock status reports by item, by supplier, or warehouse. On-request and month/year-end versions are available.
- Updates item unit cost from receipts using average cost or last cost and maintains a standard cost field.
- Prints exception-type inventory re-order report.
- Prints on-order status report for manufacturing orders and purchase orders.
- Prints exception reports for manufacturing and purchase orders.
- Calculates and prints ABC analysis report.
- Calculates and prints inventory management figures, including economic order quantity, amount and percentage of profit, average monthly use, turnover rate, and order point.
- Prints inventory analysis report in either financial or stock movement format.
- Prints physical inventory list by item or by cycle count code, or by selection of warehouse, item class, and warehouse location.
- Prints physical inventory valuation and variance report.
- Prints a price list for inventory items.
- Cycle count support, selectable by item.
- Prints LIFO/FIFO inventory valuation report.
- Item number field is alphameric, up to 15 characters.
- Order release function for manufacturing and purchase orders includes:
 - Order splitting
 - Order release audit list
 - Allocation of material at order release
 - Shortage reports consolidated by item and by order number
 - Material picking list (for manufacturing orders).
- Pick complete function (ability to report issue of all components for an assembly with a single transaction).
- Supports option handling during order release cycle.
- Uses engineering effectivity dates during inventory allocation procedures.
- Maintains inventory balance figures for multiple warehouses.
- Supports blanket purchase orders.
- Interfaces with Order Entry and Invoicing, Sales Analysis, Product Data Management, Production Control and Costing, Data Collection System Support, and Material Requirements Planning, if installed.

Sales Analysis

- Receives input from Order Entry and Invoicing, Sales Ledger, and Inventory Management. At least one of those applications must be installed before installing Sales Analysis.
- Multiple comparative analysis reports provided:
 - Profit analysis by item
 - Sales analysis by item
 - Profit analysis by customer
 - Sales analysis by customer
 - Profit analysis by salesman
 - Sales analysis by salesman.
- Programs may be run at any time during the accounting period.
- Online inquiry into the item, customer and salesman files.
- User selects only those items for which sales information is desired.
- Supports up to 20 companies.
- Optional monthly or 13-period processing.

Product Data Management

- Provides for the creation and maintenance of the item master, product structure, routing, and work centre files, and labour/overhead tables.
- Provides multiple action product structure maintenance transactions, (e.g. mass replace, mass delete, and 'same as except').
- Notifies Material Requirements Planning of changes in the bill-of-material so that the material plan will reflect the changes.
- Uses effectivity dates to activate future engineering design changes.
- Provides for building up current and standard costs for products from the product structures and routings.
- Allows users who do not have routings and work centres to build current and standard costs for products from the labour/overhead table.
- Provides for cost simulations.
- Report selection options can be entered through the workstations, or default values can be used when a procedure is initiated.
- Maintains item master and work centre files and labour/overhead table online.
- Interactive edit for product structure and routing files online with batch update.
- Provides inquiries into items, bills, feature/options, routings, work centres, costs and labour/overhead rates.
- Prints reports for items (many variations), work centres, feature/options, bills, costed bills, routings, costed operations, management cost summary, and cost variations.
- Provides up to 20 features for each finished product with multiple options per feature.
- Interfaces with Inventory Management, Material Requirements Planning, Production Control and Costing, and Order Entry and Invoicing, if installed.

Material Requirements Planning

- Material Requirements Planning application includes Master Production Schedule Planning (MPSP), Material Requirements Planning (MRP) and Order Release Planning (ORP).
- Reports and inquiries contain:
 - Requirements detail
 - Release Order detail
 - Variable date heading
 - Planning exception
 - Single level pegging.
- Prints reports of planner action required to correct deviations from plan.
- Provides for the entry and use of a forecast with the ability to propagate service part requirements. Displays comparison of forecast to customer orders (if Order Entry and Invoicing is installed).
- Prints cash flow analysis reports.
- Provides firm planned order support with the ability to change date and/or quantity, and to specify whether purchased or manufactured.
- Order release provides the ability to specify purchase or make, test inventory availability prior to release, and print shortage reports.
- Master Production Schedule Planning translates master level requirements into a master production plan and utilises the bill-of-material product options of Product Data Management.
- Prints and/or displays comparison of Master Production Schedule to the forecast.
- Provides the ability to update, review, and approve the Master Production Schedule at the workstation.
- Material planning provides net change and full generation modes of processing. The master production schedule is exploded to create the manufacturing material plan. Engineering change by product structure effectivity dates are considered. Five lot sizing algorithms are available.
- Provides a calendar with up to a five year planning horizon. Requirements are pinpointed by day (bucketless). Dates are expressed by month, day, and year, with the ability to designate holidays, workdays, and non-workdays.
- Prints purchase planning reports. Purchase requirements are time phased and printed in supplier sequence. Item requirements are converted into common units and printed in a time-related report to assist the customer in realising price break and shipping economies.

Production Control and Costing

- Provides the ability to:
 - Release production orders and create the necessary shop paperwork to move a production order through the shop floor
 - Produce labour tickets and shop turnaround documents
 - Accept labour and move transactions via the workstation or via diskette
 - Closeout selected orders.
- Provides inquiries to display:
 - Status of open orders
 - Worklist by work centre.

- Provides reporting of:
 - Order status with a variety of print formats
 - Open order exception reports
 - Prioritised worklist by work centre
 - Orders for closeout.
- Provides work station support to maintain:
 - Open order information
 - Operation detail records
 - Miscellaneous charge records.
- Monitors and values scrap at each operation.
- Accumulates the actual cost of an order, quantities and hours, and compares them to a standard.
- Accumulates and maintains the value of work-in-process.
- Interfaces with Inventory Management, Product Data Management, Payroll*, Purchase Ledger**, and Data Collection System Support***, if installed.

Data Base Conversion Programs

For customers converting from System/32 MMAS to System/34 MAAPICS.

Responsibility for conversion rests with the customer, although assistance via Systems Engineering Services may be available. To help the customer convert MMAS data files to MAAPICS format, data base conversion programs will be included in the licensed machine-readable material.

Programs and pertinent Operation Control Language will be supplied for conversion of the permanent data files. The conversion is performed on the System/34. The programs assume that no changes were made in the MMAS CGP data base.

Specified Operating Environment

Support, as described in the Program Services Section, will be provided for these Licensed Programs when they are operated in the following specified operating environment.

System Requirements

The minimum system configuration requirements are an IBM System/34 with:

- 5340 System Unit with Diskette 1 Drive, 8.6 megabytes of disk storage and 48K (Model B11) or 64K (Model C11) bytes of main storage depending on the application (see below).
- One system printer, either line printing at 160 lines per minute, or serial printing at 40 characters per second. The 64 character print belt is required for use with Data Collection System Support.
- One display station with 1920 character display screen, 83-key conventional keyboard and 10-key numeric pad (5251 Model 11).

* S/34 Payroll 5797-QPH

** S/34 Purchase Ledger 5797-QPJ

*** S/34 Data Collection System Support 5726-M4A

- 64K bytes of main storage are required if any of the following programs are present:
 - Order Entry and Invoicing
 - Inventory Management
 - Product Data Management
 - Material Requirements Planning
 - Production Control and Costing.
- 48K bytes of main storage may be used in certain environments when the above programs are not included.

There is nothing inherent in the design of the MAAPICS applications which prevents the use of the minimum system configuration stated above. However any system configuration chosen must be able to accommodate the expected business volumes, data base size and operating requirements of the user.

The amount of disk storage required is influenced by the:

- Number of applications installed
- Volume of daily transactions
- Number of records in the required master files.

Additionally a main storage capacity greater than the stated minimum requirement will often provide improved performance. For example, performance is affected by the:

- Number of applications operating concurrently
- Number of work stations operating concurrently on the same or different applications.

Programming Systems

The application programs are written in IBM System/34 RPG II programming language and executed under control of the IBM System/34 System Support Program Product.

Prerequisite programs needed are:

- System/34 System Support Program Product (5726-SS1)
- System/34 Utilities Program Product (5726-UT1)
- System/34 RPGII Program Product (5726-RG1) must be available if modifications to the application programs are made.

Publications

The following unlicensed support publications are now available:

IBM System/34 MAAPICS

General Information Manuals

- Order Processing and Accounting Applications 45-7678
- Manufacturing Applications 45-7691
- Design Objectives
- Order Entry and Invoicing 45-7670
- Sales Ledger 45-7672
- Sales Analysis 45-7673
- Production Control and Costing 45-7697
- Inventory Management 45-7671
- Product Data Management 45-7698
- Material Requirements Planning 45-7699

178 The following publications will be produced for each program, to be available with the program. Document numbers will be assigned at that time:

Unlicensed Documentation

- Licensed Program Specification
- Runbook
- Application Reference Manual

Licensed Documentation

- Application Logic Manual

System Publications

In addition to the individual application publications there are four publications covering the whole MAAPICS offering which are supplied with the Support Module. These are:

- | | |
|------------|--------------------------|
| Unlicensed | Installation Guide |
| | System Operation Runbook |
| | System Reference Manual |
| Licensed | System Logic Manual |

These publications will be available with the first program. Document numbers will be assigned later.

Terms and Conditions

These Programs are licensed under the Agreement for IBM Licensed Programs, to which the following sections relate:

Charges

The Programs are each available at a continuous monthly licence charge. Contact the local GSD Branch Office for current prices.

Test Period

30 days

Warranty

No

Program Services

Program services will be provided without additional charge for current unaltered licensed program modules which are operating in the specified operating environment. A licensed program module is a library module such as a program, a procedure, a set of sort or utility specifications or a data file. A module is considered current if all available refreshes have been applied. Any changes other than applying Program Temporary Fixes (PTFs) or refreshes from IBM constitute an altered module.

- Central Service : Available until discontinued by IBM
- Local Service : Available for 24 months after availability
- Designated Service Representative : SE.

Location Licence

Does not apply.

Installation Licence

Applies.

Ordering Information

Order from the local GSD Branch Office using the following program numbers:

| Application | Program Number | Feature Code |
|----------------------------------|----------------|--------------|
| System/34 MAAPICS | | |
| — Order Entry and Invoicing | 5797-QNN | |
| — Sales Ledger | 5797-QNP | |
| — Sales Analysis | 5797-QNQ | |
| — Production Control and Costing | 5726-M41 | 9043 |
| — Inventory Management | 5726-M45 | |
| — Product Data Management | 5726-M46 | |
| — Material Requirements Planning | 5726-M48 | |

The programs will be distributed on diskettes. These will be supplied by IBM and will remain the property of IBM. The user will be required to provide diskettes for backing up the Application System as well as the System Support Program Product and Utilities and the files used by the Application System.

Support Module

Certain procedures common to all applications are available under the following feature code which should be specified once at the time the first MAAPICS application is ordered, irrespective of how many applications are required. The procedures are supplied on diskettes which are needed with the first program to be installed.

| Support Module | Feature Code |
|----------------|--------------|
| | 7043 |

Program Material

The following will be provided for each program ordered:

Licensed Material

- One copy of the Machine Readable Material including source code, catalogued procedures, operation control language, sort control statements and object code
- One copy of the Application Logic Manual.

Unlicensed Material

- Two copies of the Application Runbook
- One copy of the Application Reference Manual
- One copy of the Licensed Program Specification.

In addition the following documentation will be provided with the Support Module (feature 7043):

- One copy of the licensed System Logic Manual.
- One copy each of the unlicensed System Installation Guide, System Operations Runbook and System Reference Manual.

- 179

Program Availability Date

The scheduled availability date in the UK for each program is:

| | |
|--------------------------------|------------------|
| Order Entry and Invoicing | 29 December 1978 |
| Sales Ledger | 29 December 1978 |
| Sales Analysis | 29 December 1978 |
| Production Control and Costing | 30 March 1979 |
| Inventory Management | 29 December 1978 |
| Product Data Management | 26 January 1979 |
| Material Requirements Planning | 23 February 1979 |

IBM United Kingdom Limited
General Business Group
General Systems Division
28 The Quadrant
Richmond
Surrey TW9 1DW

UK Form 40-7732

Printed in England by
The Basingstoke Press (75) Limited
Basingstoke
Hants

